

Supplemental Programmatic Environmental Assessment for Army 2020 Force Structure Realignment



June 2014



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June 2014

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



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Colonel, U.S. Army
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1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction

Current budget projections require the United States (U.S.) Department of the Army (Army) to analyze force reductions to a lower end-strength than previously planned. Previous expectations were initially addressed in January 2011, when the Secretary of Defense announced that the Army would move forward with a force reduction of 27,000 Soldiers from the Army's Fiscal Year (FY)² 2012 end-strength of 562,000. Reductions and realignments were required to achieve the savings specified in the 2011 Budget Control Act. To achieve these savings, the Army proposed to reduce the size of its force from a post-9/11 peak of about 570,000 in 2010 to 490,000.³ To provide an updated defense strategy that protects and advances U.S. interests and sustains U.S. leadership within the fiscal constraints of decreased DoD funding, the Army must consider how best to make trade-offs between programs and operations, while strategically moving forward to preserve mission capabilities and modernize the force to meet future threats. To meet national security and defense requirements, enhance Army operational effectiveness, and maintain training and operational readiness (while preserving a high quality of life for Soldiers and Families within sustainable levels of resourcing), the Army identified the need to reduce, reorganize, and rebalance (collectively, "realign") its force structure. This Proposed Action is a continuation and expansion of the reductions addressed above and would continue through FY 2020.

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

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

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

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

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

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

10 When the 2013 PEA was completed, DoD was operating in accordance with the 2010 QDR. The
11 2010 QDR was truly a wartime QDR. Its first objective was to further rebalance the capabilities
12 of America's Armed Forces to prevail in the country's wars, while building the capabilities
13 needed to deal with future threats. The second objective was to further reform DoD's institutions
14 and processes to better support the urgent needs of the warfighter; purchase weapons that are
15 usable, affordable, and truly needed; and ensure taxpayer dollars are spent wisely
16 and responsibly.

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

26 Since the 2013 PEA was completed, DoD mission and fiscal considerations have continued to
27 change, and the future end-strength of the Army must be reduced below the 490,000 considered
28 in the 2013 PEA. The 2014 QDR states that the active Army will reduce from its wartime high
29 force of 570,000 to 440,000–450,000 Soldiers. The 2014 QDR also states if sequestration-level
30 cuts are imposed in FY 2016 and beyond, active component end-strength would be reduced to
31 420,000. These potential reductions, therefore, call for an environmental and socioeconomic
32 impact analysis of approximately two times the reductions analyzed in the 2013 PEA.
33 Consequently, the Army is preparing this supplement, building on the information and analysis
34 contained in the 2013 PEA (the 2013 PEA is incorporated by reference) to assess the
35 environmental and socioeconomic impacts of a substantial increase in potential reductions. The
36 Proposed Action for this Supplemental PEA (SPEA) is very similar to the reduction alternative
37 in the 2013 PEA but is both broader in scope and allows for deeper potential reductions. The

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

4 **1.2 Purpose and Need of the Proposed Action**

5 The 2014 QDR indicated the Army needs to meet its national security mission with potentially
6 reduced levels of funding and personnel. The Army's national security mission, along with the
7 other U.S. Armed Forces, is to (1) counter terrorism and irregular warfare; (2) deter and defeat
8 aggression; (3) project power despite anti-access/area denial challenges; (4) counter weapons of
9 mass destruction; (5) operate effectively in cyberspace and space; (6) maintain a safe, secure, and
10 effective nuclear deterrent; (7) defend the homeland and support civil authorities; (8) provide a
11 stabilizing presence; (9) conduct stability and counter-insurgency operations; and (10) conduct
12 humanitarian disaster relief and other operations (see 2013 PEA, pages 1-3 to 1-6 for a more
13 complete explanation of the Army's mission). The end-strength of the Army as a whole and the
14 future Soldier and Army civilian population at individual installations continue to be uncertain.
15 In addition to the 10-year, \$487 billion cut in spending instituted under the Budget Control Act
16 of 2011, the Budget Control Act also instituted a sequestration mechanism requiring additional
17 cuts of about \$50 billion annually through FY 2021. While the Bipartisan Budget Act of 2013
18 provided some relief from sequestration, the annual sequestration cuts are set to resume in FY
19 2016, unless Congress passes legislation to stop sequestration from going into effect (DoD,
20 2014). In response to the fiscal constraints and recognizing that the Joint Force is currently out of
21 balance, the 2014 QDR, which "seeks to adapt, reshape, and rebalance our military to prepare for
22 the strategic challenges and opportunities we face in the years ahead," indicates the Army must
23 reduce its active component strength from a war-time high of 570,000 to 440,000–450,000
24 Soldiers, and, possibly, active component Army end-strength would need to be further reduced to
25 420,000 (DoD, 2014).

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

1 of life and the all-volunteer force; and (4) adapting the force to reduce Army expenditures (see
2 2013 PEA, pages 1-6 to 1-7, for a more complete explanation of these goals).

3 **1.3 Scope of the Analysis**

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

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

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

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

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

7 As with the 2013 PEA, this SPEA looks at Army installations that have the potential to lose
8 1,000 or more full-time, active component Soldiers and Army civilians from FY 2013 to FY
9 2020. The 2013 PEA focused on installations with operational forces (i.e., BCTs). Because the
10 2014 QDR calls for additional cuts, the Army must consider more than operational forces for
11 reductions; therefore, more installations now fit into this 1,000-person threshold than did for the
12 reduction alternative of the 2013 PEA. The 1,000-Soldier/Army civilian threshold was chosen
13 because it represents a level of reduction at a majority of installations that requires additional
14 analysis under the Army's NEPA regulations (USAEC, 2007). It also represents, as it did in the
15 2013 PEA, a number that Army planners thought could produce significant economic impacts.
16 The information in this SPEA will assist the Army in complying with other Congressional
17 notifications required when the Army plans to reduce more than 1,000 military members at an
18 installation (10 United States Code §993). Although this SPEA analyzes only installations that
19 have the potential to lose 1,000 or more full-time, active component Soldiers and/or Army
20 civilians, all Army organizations have the potential to be affected by the Army's force reduction.

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

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

1 **Table 1.3-1. Installations with Major Army Training Missions**

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

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

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

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

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

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

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

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

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

15 The scope of this analysis excludes any potential reductions in the Army National Guard
16 (ARNG) and U.S. Army Reserve. Under existing conditions, ARNG will continue its downsizing
17 from a war-time high of 358,000 to 335,000 Soldiers, and the U.S. Army Reserve will reduce
18 from 205,000 to 195,000 Soldiers (DoD, 2014). If sequestration-level cuts are imposed in FY
19 2016 and beyond, the ARNG will be further reduced to 315,000, and the U.S. Army Reserve will
20 be further reduced to 185,000 (DoD, 2014). Soldiers in these components are generally not
21 serving full time at installations. They serve at a variety of locations, including many
22 installations not analyzed for reductions in this SPEA. It is currently not known how or where
23 reductions in ARNG and U.S. Army Reserve forces would be enacted; therefore, they are not
24 included in the analysis of this SPEA.

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

33 **1.4 Public Involvement**

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

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

3 This SPEA and Draft FNSI are available for review on the U.S. Army Environmental Command
4 website at: <http://aec.army.mil/Services/Support/NEPA/Documents.aspx>. Please submit
5 comments to U.S. Army Environmental Command, ATTN: SPEA Public Comments, 2450
6 Connell Road (Building 2264), Joint Base San Antonio-Fort Sam Houston, TX 78234-7664 or
7 via email to: usarmy.jbsa.aec.nepa@mail.mil. Inquiries may also be made via phone by calling
8 210-466-1590 or toll-free 855-846-3940.

9 **1.5 Army NEPA Decision**

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

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

29 **1.6 Force Structure Decision Making Process**

30 It is important to understand the programmatic nature of the action alternative analyzed in this
31 SPEA and the severity of the force reduction decisions to be made by the Army through FY
32 2020. This SPEA looks at possible losses at select installations using the greatest anticipated
33 possible population loss. This does not mean that these losses will actually occur to the full
34 extent analyzed or that each installation analyzed will incur losses. These scenarios, however, are
35 being evaluated because force structure decision makers need information about potential
36 environmental and socioeconomic impacts, along with other input, as they analyze force
37 structure alternatives to rebalance the Army's capability, capacity, and readiness through FY

1 2020. This SPEA will provide the Army force structure decision makers with an understanding
2 of the impacts to the human environment that would occur under the Proposed Action.

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

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

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

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

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Introduction

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

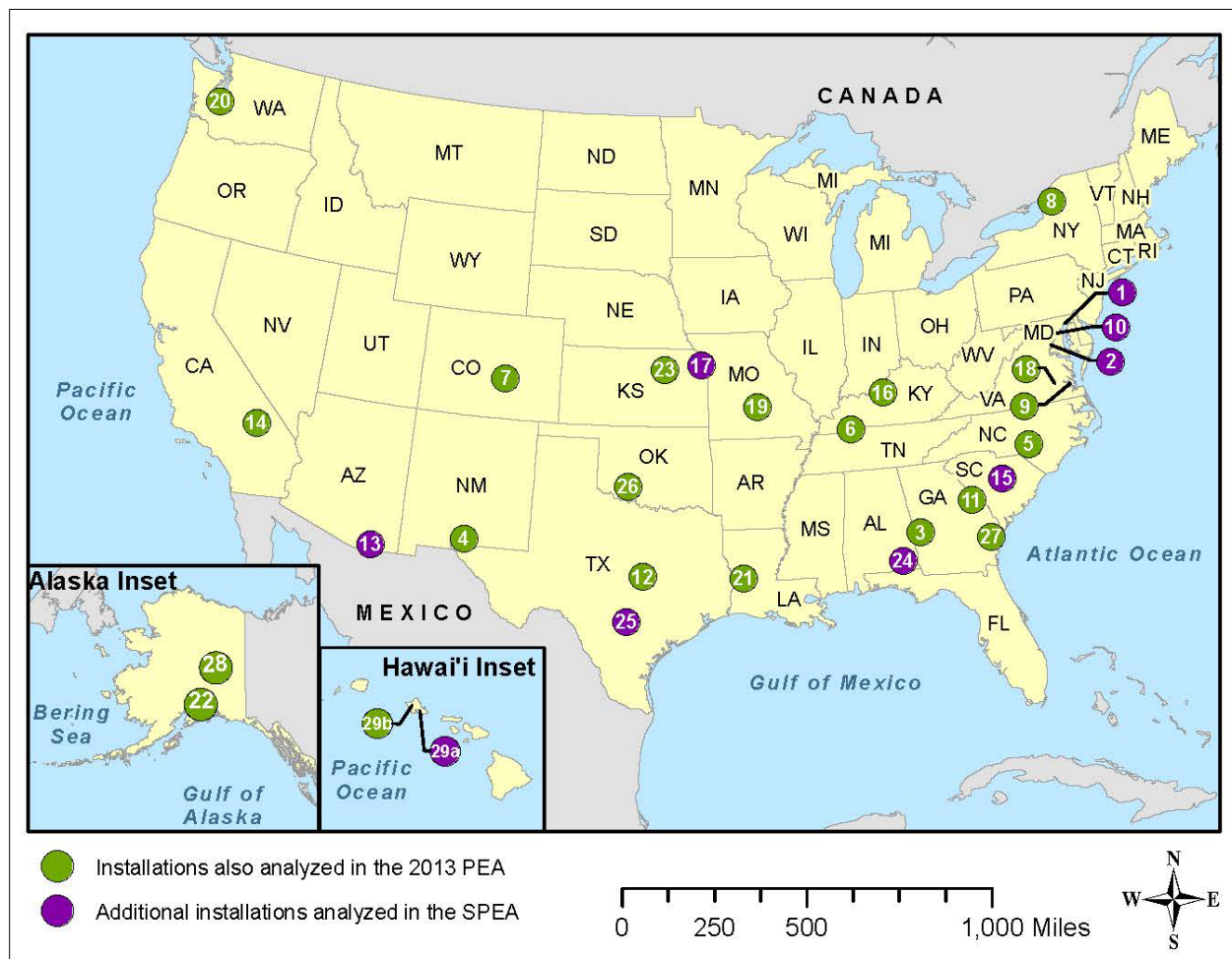
2.2 Proposed Action

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

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

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

1



2
3

Notes:

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

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

6

3.0 ALTERNATIVES AND SCREENING CRITERIA

3.1 Introduction

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

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

3.2 Alternatives Carried Forward for Analysis

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

3.2.1 Alternative 1—Implement Force Reductions

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

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

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

12 The further reduction in active component Army Soldiers to 420,000, as indicated in the 2014
13 QDR, is approximately double that analyzed in the 2013 PEA (142,000 compared to 72,000)
14 assuming the same baseline, although, unlike the 2013 PEA, the types of units to be affected by
15 further reductions are unknown and therefore not discussed. For analysis in this SPEA, to
16 achieve the increase in force reductions under current fiscal, policy, and strategic conditions, the
17 Army is doubling the maximum reduction scenarios that were presented in the 2013 PEA with
18 one change. The formula for doubling the military employees to be lost at installations with only
19 one BCT has changed. Installations with only one BCT cannot lose a second BCT. If the
20 numerical reduction was doubled from that in the 2013 PEA, with no consideration of unit type,
21 the number of non-BCT Soldiers would be reduced even further by the equivalent of the size of a
22 BCT, and this is not a realistic scenario. Thus, in this SPEA, the formula for calculating the
23 reduction of active component personnel at installations with only one BCT is the loss of one
24 BCT and doubling the number of non-BCT Soldiers and Army civilian workforce (i.e., loss of
25 one BCT plus two x (30 percent of non-BCT Soldiers + 15 percent of Army civilians). Table 3.2-
26 2 provides a breakdown of permanent party Soldier and Army civilian reductions assessed in
27 this SPEA.

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

1 **Table 3.2-1. Alternative 1—Force Reductions**

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

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

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

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

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

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

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

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

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

2 ^a Total is rounded to an adjacent 100.

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

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

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

23 **3.2.2 No Action Alternative**

24 As described in the 2013 PEA, the No Action Alternative would retain the Army at a FY 2012
25 end-strength of about 562,000 active component Soldiers and more than 320,000 Army civilians.
26 The No Action Alternative generally assumes that units would remain stationed where they were
27 stationed at the end of FY 2012. Under the No Action Alternative, no additional Army personnel
28 would have been realigned or released from the Army to balance the composition of Army skill
29 sets to match current and projected future mission requirements or to address budget
30 requirements. No BCT restructuring would have occurred as proposed under Alternative 2 of the
31 2013 PEA, and no unit inactivations would have occurred.

32 While no longer reasonable because force reductions and restructuring have occurred since FY
33 2012, as published in the Army Stationing and Installation Plan in FY 2012, the inclusion of the
34 No Action Alternative within this SPEA provides a baseline against which to compare the
35 potential environmental and socioeconomic impacts of the Proposed Action as required by
36 CEQ regulations.

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

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

14 **3.3 Alternatives Considered but not Carried Forward for Analysis**

15 The Army could reduce its number of active component Soldiers by having each installation and
16 major unit reduce the same percentage of Soldiers across the board. For a reduction from
17 490,000 to 420,000, this would be a 14 percent reduction. Each BCT, for instance, would lose 14
18 percent of its Soldiers. While this solution would be easy to plan, its results would not support
19 the purpose and need of the Proposed Action. Some units would have to be brought up to 100
20 percent for deployment, leaving others with even less than 86 percent strength. These units could
21 not properly train and could not maintain their equipment. This situation would create a “hollow
22 Army” with units existing in name only and not prepared for deployment, reducing the overall
23 Army readiness and preventing it from meeting national security requirements. This method
24 would also eliminate the flexibility the Army needs in planning force reductions, so the Army
25 can build fewer but more mission capable units. World events, for instance, may require that
26 Soldiers and units in some areas be maintained at current strengths. The military value analysis
27 may indicate that the best possible path forward is to eliminate more forces at some locations
28 than others. Because of these issues, this alternative would not support the purpose and need of
29 the Proposed Action and was not carried forward for full analysis.

30 A potential alternative not carried forward for analysis was to evaluate a total reduction to an
31 end-strength of either 440,000 or 450,000 because the 2014 QDR states that the active Army will
32 reduce from its wartime high force of 570,000 to 440,000–450,000 Soldiers without considering
33 potential sequestration level cuts. It was determined that because the 2013 PEA analyzed cuts of
34 126,000 that would have resulted in an end-strength of 436,000 (well below the required end-
35 strength of 490,000); this alternative had already been assessed and was not required for
36 this SPEA.

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

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

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

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

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4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

4.0.1 Introduction

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

4.0.2 Differences Between the SPEA and the 2013 PEA

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

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

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

1 the EIFS results. The EIFS model was recently updated and now includes census data through
2 2011 and was used for this analysis and it was not necessary to use the RECONS model to
3 validate the results in the SPEA.

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

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

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

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

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

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

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

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

30 **4.0.3 Valued Environmental Component Impact Ratings**

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

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

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

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

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

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

32 **4.0.4 Valued Environmental Components and Thresholds of Significance**

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

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

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

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

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

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

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

4.0.5 Cumulative Effects Analysis Methodology

CEQ regulations implementing NEPA define a “cumulative impact” as follows:

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

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

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

For the purposes of this SPEA, significant cumulative impacts would occur if incremental impacts of the Proposed Action, added to the environmental impacts of past, present, and reasonably foreseeable actions, would exceed significance thresholds for resources at an installation and the surrounding regions. The Army considered a wide range of past, present, and reasonably foreseeable future actions by researching existing literature and information provided by installations to identify other projects in the region of each installation that could contribute to cumulative environmental impacts. The Army considered other past, present, or foreseeable future actions regardless of whether the actions are similar in nature to the Proposed Action or outside the jurisdiction of the Army. As part of this analysis, the Army acknowledges the non-federal investment of private companies and local communities to support Army installations. These investments were made given the prediction of growth at the time; however, the Army could not predict the potential changes in Army forces being evaluated in the SPEA. The impact these decisions will have on non-federal investments is beyond the scope of the SPEA.

Cumulative impacts are addressed within each installation section following the discussion of environmental effects for each alternative. Each installation’s cumulative effects analysis offers a fuller understanding of resource conditions that implementation of the Proposed Action might magnify, amplify, or otherwise exacerbate or cause beneficial or adverse impacts to resources on a regional or long-term scale. There are few impacts from actions proposed for installations that when taken together have the potential to cause a nationwide cumulative impact; these potential impacts are discussed in Section 4.32.

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

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1 **4.1 Aberdeen Proving Ground, Maryland**

2 **4.1.1 Introduction**

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

9 Aberdeen Proving Ground was established as two separate military installations in 1917. The
10 two sites were the Ordnance Proving Ground and the Gunpowder Reservation. The Gunpowder
11 Reservation became Edgewood Arsenal. The Ordnance Proving Ground area is referred to as
12 Aberdeen Proving Ground's Northern Peninsula. The Edgewood Arsenal (formerly Gunpowder
13 Reservation) area is referred to as Aberdeen Proving Ground's Southern Peninsula. In 1971, the
14 Army administratively combined Aberdeen Proving Ground and Edgewood Arsenal into one
15 Army installation. After consolidation, each area continued with its respective military role.
16 Administration of both areas became the responsibility of U.S. Army Garrison (USAG)
17 Aberdeen Proving Ground with the current 5 management and control offices, 6 directorates,
18 10 support offices, and more than 21,000 Army civilian, military, and contractor employees.
19 Aberdeen Proving Ground encompasses more than 2,000 buildings with greater than 17 million
20 square feet of space. It is home to 11 major commands and supports more than 80 tenants, 20
21 satellite, and 17 private activities. Today Aberdeen Proving Ground is considered a DoD and
22 universal leader in the Research, Development, Test & Evaluation (RDTE) of Army materiel,
23 including the training of military personnel who use the materiel (Aberdeen Proving
24 Ground, 2014a).

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

1 in the daily population to more than 21,000 personnel, including approximately 90 tenants and
 2 11 Major Commands (Aberdeen Proving Ground, 2007).

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

6 **4.1.2 Valued Environmental Components**

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

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

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

14 **4.1.3 Air Quality**

15 **4.1.3.1 Affected Environment**

16 Aberdeen Proving Ground is located in an area in nonattainment for ozone (O₃) and particulate
 17 matter whose diameter is less than or equal to 2.5 micrometers (PM_{2.5}) (EPA, 2013). Harford
 18 County, which includes Aberdeen Proving Ground, is within the Metropolitan Baltimore

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

6 Results of modeling and other studies indicate that existing Aberdeen Proving Ground activities
 7 cause minor impacts to ambient concentrations of sulfur dioxide (SO₂) and moderate impacts to
 8 ambient concentrations of nitrogen dioxide (NO₂), CO, and O₃ (USACE, 2013). Emissions of
 9 particulate matter whose diameter is less than or equal to 10 micrometers (PM₁₀) at certain
 10 vehicle testing tracks are considered to be a problem. Occasionally, smoke from brush fires at
 11 Aberdeen Proving Ground may extend for a distance and cause moderate impacts (local nuisance
 12 and impairment of visibility), while releases of global warming gases that may include carbon
 13 dioxide (CO₂) and O₃-depleting chemicals are estimated to cause negligible impacts (USACE,
 14 2013). Annual criteria pollutant emissions from 2009 to 2013 are available in Table 4.1-2.

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

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

Year	NO _x	Sulfur Oxides	PM ₁₀	CO	VOC
	(tons per year)				
2013	59.72	11.02	1.91	30.87	2.34
2012	45.46	13.48	1.58	26.75	7.75
2011	38.96	22.95	1.43	35.44	3.92
2010	51.05	22.14	2.63	49.59	8.09
2009	41.65	34.60	4.19	28.51	7.93

22 Source: USACE (2013)

23 **4.1.3.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, existing levels of emissions would continue to result in minor
 26 to moderate impacts to air quality. Emissions would remain at levels below existing permit
 27 thresholds; however, PM₁₀ emissions would continue to be a problem at certain vehicle
 28 testing tracks.

1 **Alternative 1—Implement Force Reductions**

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

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

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

17 **4.1.4 Airspace**

18 **4.1.4.1 Affected Environment**

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

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

1 Aberdeen Proving Ground currently maintains restricted airspace over 210 square miles of the
2 proving ground and surrounding areas designated as Restricted (R)-4001A, R-4001B, and R-
3 4001C. The installation maintains flight restrictions from the surface to unlimited altitude to
4 conduct daily missions in R-4001A without hazard to non-participating aircraft. If it can be
5 safely done, Aberdeen Proving Ground releases the airspace above 3,000 feet mean sea level
6 (msl) to FAA air traffic control each day to facilitate the movement of commercial and private
7 air traffic. Flight restrictions from the surface to unlimited altitude are reinstated the next duty
8 day (Aberdeen Proving Ground, 2014b). Flight restrictions below 3,000 msl are always
9 maintained at Aberdeen Proving Ground. In R-4001B, the airspace restrictions are only activated
10 via a published Notice to Airmen 24 hours in advance and only for a specific amount of time
11 (Aberdeen Proving Ground, 2014b). Airspace R-4001C is to restrict access into the Joint Land
12 Attack Cruise Missile Defense Elevated Netted Sensor System Operational area and still provide
13 airspace to the controlling authority in R-4001A and R-4001B. R-4001C is active to
14 10,000 feet msl.

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

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

28 **4.1.4.2 Environmental Effects**

29 **No Action Alternative**

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

33 **Alternative 1—Implement Force Reductions**

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

1 **4.1.5 Cultural Resources**

2 **4.1.5.1 Affected Environment**

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

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

21 Aberdeen Proving Ground has identified 11 federally recognized tribes that may have an interest
22 in lands that are now part of the installation. An ethnohistory report was completed for the
23 installation in 1999 (USACE, 1999), and consultations with the 11 tribes were conducted from
24 1999–2000 to assist in the identification of historic properties of religious or cultural significance
25 to Native American tribes. To date, one Traditional Cultural Property (TCP) or sacred areas have
26 been identified within Aberdeen Proving Ground-managed lands.

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

1 **4.1.5.2 Environmental Effects**

2 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

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

26 **4.1.6 Noise**

27 **4.1.6.1 Affected Environment**

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

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

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

19 The state of Maryland regulates noise control. These regulations establish an allowable noise
20 level for residential properties of 65 A-weighted decibels (dBA) during the day (7 a.m. to
21 10 p.m.) and 55 dBA during the night (10 p.m. to 7 a.m.). Impulsive noise, such as that resulting
22 from munitions testing, is not covered by state regulations (Aberdeen Proving Ground, 2014b).
23 In 2006, Aberdeen Proving Ground finalized an Installation Operational Noise Management Plan
24 (IONMP), which is the framework document that guides the implementation of its
25 Environmental Noise Management Program. The Aberdeen Proving Ground Environmental
26 Noise Management Program is intended to eliminate unacceptable or unnecessary noises in
27 populated areas. The Aberdeen Proving Ground test ranges are located within the Zones II and
28 III noise contours. Large caliber and static detonation programs require command approval if the
29 noise model prediction value is greater than 130 dBA. Atmospheric conditions such as wind
30 speed and direction, temperature inversions, cloud cover, etc., are monitored periodically, and
31 variables such as sound-pressure levels, sound-ray magnification and focus, intervening sound
32 barriers, distance from sources, sound characteristics, and existing background noise are all taken
33 into consideration. In general, clearances are usually granted for firing, as long as calculations
34 show there will be no damaging effects beyond installation boundaries (U.S. Army, 2009a).

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

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

3 **4.1.6.2 Environmental Effects**

4 **No Action Alternative**

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

13 **Alternative 1—Implement Force Reduction**

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

26 **4.1.7 Soils**

27 **4.1.7.1 Affected Environment**

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

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

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

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

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

32 **4.1.7.2 Environmental Effects**

33 **No Action Alternative**

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

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

3 **Alternative 1—Implement Force Reductions**

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

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

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

19 **4.1.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 20 Species)**

21 **4.1.8.1 Affected Environment**

22 **Vegetation**

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

30 These open estuarine waters are the shallow water areas of the Chesapeake Bay, which provides
31 suitable habitat of many kinds of submerged aquatic vegetation (SAV) (USACE, 2007). SAV is
32 a diverse group of rooted aquatic plants that perform a number of irreplaceable ecological
33 functions, yet historical SAV areas have been declining since 1980 (Aberdeen Proving Ground,
34 2014b). The Virginia Institute of Marine Sciences conducts annual aerial surveys to photograph
35 and map SAV in the Chesapeake Bay, which Aberdeen Proving Ground supports by conducting

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

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

13 **Wildlife**

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

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

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

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

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

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

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

23 **Threatened and Endangered Species**

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

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

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

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

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

6 Sixty-two vascular plant species listed as rare, threatened, or endangered by the Maryland
 7 Natural Heritage Program were found on Aberdeen Proving Ground (Aberdeen Proving Ground,
 8 2014c). Two taxa under review for federal listing were found—Delmarva beggarticks (*Bidens*
 9 *bidentoides*) and butternut (*Juglans cinerea*) (Aberdeen Proving Ground, 2014c). Of the 62 rare
 10 species collected, 42 were associated with wetland habitats, and 20 were found on dry to mesic
 11 soils (Aberdeen Proving Ground, 2014c). Carroll Island and Spesutie Island collectively
 12 contained populations of 32 percent of the rare species identified (Aberdeen Proving
 13 Ground, 2014c).

14 **4.1.8.2 Environmental Effects**

15 **No Action Alternative**

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

22 **Alternative 1—Implement Force Reductions**

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

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

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

8 **4.1.9 Wetlands**

9 **4.1.9.1 Affected Environment**

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

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

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

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

2 Source: USFWS (2010)

3 **4.1.9.2 Environmental Effects**

4 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

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

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

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

3 **4.1.10 Water Resources**

4 **4.1.10.1 Affected Environment**

5 **Surface Water/Watersheds**

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

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

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

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

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

10 **Groundwater**

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

18 Over the years, monitoring wells have showed that installation groundwater has been
19 contaminated by a variety of chemicals, metals, and organic compounds with the concentrations
20 of some exceeding groundwater quality standards (U.S. Army, 2003, as cited by USACE, 2007).
21 Detected contaminants include volatile and chlorinated volatile organic compounds (VOCs),
22 perchlorate, trichloroethylene, and nerve agent compounds (USACE, 2007). Two contaminant
23 plumes were detected within the groundwater in the Canal Creek vicinity leading to
24 contamination of the surficial and Canal Creek aquifers (U.S. Army, 2003, as cited by USACE,
25 2007). Groundwater remediation measures that have been used on the installation include filters,
26 carbon treatment system, treatment plant, phytoremediation, and other cleanup techniques
27 (USACE, 2007; U.S. Army, 2009a).

28 **Water Supply**

29 Drinking water for Aberdeen Proving Ground is supplied by two water distribution systems and
30 multiple wells. The northern system is owned and operated by the city of Aberdeen, and the
31 southern system is owned and operated by the installation. For northern supplies, water is
32 withdrawn from Deer Creek and passes through a pumping station to the Chapel Hill water
33 treatment plant for standard treatment procedures. The pumping station has a capacity of
34 4 million gallons per day (mgd), and the water treatment plant has a 6 mgd capacity (USACE,
35 2007). Following treatment, water can be stored in a 1.6 million gallon well. Maximum water
36 withdrawal from the system is 3 mgd; however, requirements for keeping some water as backup

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

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

9 Southern water supplies are drawn from the Van Bibber impoundment of Winters Run (Harford
10 County, 2005, as cited by USACE, 2007) under a permit capped at 2.5 mgd (U.S. Army, 2006,
11 as cited by USACE, 2007). The filtration capacity of the Van Bibber Water Treatment Plant is
12 4 mgd, and storage capacity is 1.3 million gallons. As of 2005, water demand on this water
13 treatment plant was 1.0 to 1.3 mgd depending on the season. Withdrawals from Winters Run are
14 not allowed during low flows, thereby forcing the installation to obtain water from an alternative
15 source; in the past, Harford County supplied this alternative source (U.S. Army, 2005b, as cited
16 by USACE, 2007). Water is distributed through the southern system through 10- to 24-inch lines
17 that interconnect and form a looped network. Water storage in the southern portion of the
18 installation is provided by several storage tanks. Most lines in the southern distribution system
19 are more than 60 years old resulting in conditions ranging from average to unacceptable
20 (USACE, 2007).

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

27 **Wastewater**

28 The wastewater treatment plant (WWTP) serving the Northern Peninsula of Aberdeen Proving
29 Ground is privatized and operated by the city of Aberdeen (Wiggins, 2007, as cited by USACE,
30 2007). The discharge outfall is to the Spesutie Narrows. This WWTP has a biological nutrient
31 removal system as well as removal technology allowing the plant to meet the Enhanced Nutrient
32 Reduction standards of the Chesapeake Bay Restoration Act. As of 2006, the WWTP capacities
33 were a maximum of 6 mgd and an average flow of 3 mgd (Overbay, 2006, as cited by USACE,
34 2007). In the mid-2000s, average daily wastewater flows treated were approximately 1.0 mgd
35 with peak flows not exceeding 2.5 mgd (USACE, 2007). Wastewater collection infrastructure
36 includes gravity mains, force mains, and sewer pumps. Sewage holding tanks serve areas without
37 other conveyances.

1 The installation operates the WWTP serving the Southern Peninsula; however, future
2 privatization options for this treatment plant are under evaluation (USACE, 2007). This plant
3 discharges to the Bush River (U.S. Army, 2006, as cited by USACE, 2007). This WWTP has
4 been upgraded to a secondary treatment system through the use of trickling filters and tertiary
5 treatment with chemicals for phosphorus removal. The treatment capacity of this plant is 2.8 mgd
6 although it is permitted for 3 mgd (U.S. Army, 2006, as cited by USACE, 2007). In the mid-
7 2000s, the average daily wastewater flows treated were 0.9 mgd (winter) and 1.1 mgd (summer)
8 (USACE, 2007). Wastewater collection infrastructure includes more than 40 miles of collection
9 lines and lift stations associated with force mains (U.S. Army, 2005a, as cited by USACE, 2007).
10 Septic tanks and leach fields serve areas without other conveyances (Harford County, 2005, as
11 cited by USACE, 2007).

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

14 **Stormwater**

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

30 **Floodplains**

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

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

4 **4.1.10.2 Environmental Effects**

5 **No Action Alternative**

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

14 **Alternative 1—Implement Force Reductions**

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

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

28 **4.1.11 Facilities**

29 **4.1.11.1 Affected Environment**

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

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

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

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

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

27 **4.1.11.2 Environmental Effects**

28 **No Action Alternative**

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

31 **Alternative 1—Implement Force Reductions**

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

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

13 **4.1.12 Socioeconomics**

14 **4.1.12.1 Affected Environment**

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

20 **Population and Demographics**

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

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

1 **Table 4.1-5. Population and Demographics, 2012**

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

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

3 **Table 4.1-6. Racial and Ethnic Composition, 2012**

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

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

5 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

6 **Employment and Income**

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

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

1 **Table 4.1-7. Employment and Income, 2012**

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

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

3 ***Baltimore County, Maryland***

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

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

15 ***Cecil County, Maryland***

16 According to the U.S. Census Bureau, the educational services, and health care and social
 17 assistance sector accounts for the greatest share of total workforce in Cecil County (20 percent).
 18 Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11
 19 percent). Construction sector accounts for 10 percent of the employment sector, followed by
 20 professional, scientific, and management, and administrative and waste management services
 21 (9 percent). The Armed Forces account for less than 1 percent of the county’s workforce. The
 22 remaining eight industries employ 38 percent of the county’s workforce (U.S. Census
 23 Bureau, 2010).

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

4 **Harford County, Maryland**

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

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

15 **Kent County, Maryland**

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

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

27 **Housing**

28 Aberdeen Proving Ground housing inventory, after a 6-year initial development period, would be
29 372 homes for military members and their Families with an additional 457 homes occupied by
30 DoD employees and military retirees. Family housing on Aberdeen Proving Ground has been
31 privatized under the Residential Communities Initiative (RCI) and is managed by Corvias
32 (USACE, 2013; U.S. Army Garrison, 2014).

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

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

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

10 **Schools**

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

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

25 In Harford County, there are several capital projects that are planned for completion over the
26 next 2 years. The Deerfield Elementary School Replacement and the Edgewood High School
27 Replacement opened in August 2010. The state-rated capacities of the replacement schools are
28 771 and 1,380, respectively. The recently constructed Red Pump Elementary School opened for
29 the 2011 school year and has approximately 700 students (Harford County Government, 2011).
30 Calvert Elementary School in Cecil County is currently being renovated.

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

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

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

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

6 **Public Health and Safety**

7 ***Police Services***

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

Fire and Emergency Services

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

Medical Facilities

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

Family Support Services

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

Recreation Facilities

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

4.1.12.2 Environmental Effects

No Action Alternative

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

1 Alternative 1—Implement Force Reductions

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

5 Population and Economic Impacts

6 Alternative 1 would result in the loss of 4,272⁶ Army positions (1,000 active component Soldiers
 7 and 3,272 Army civilians), each with an average annual income of \$46,760 and \$64,203
 8 respectively. In addition, this alternative would affect an estimated 6,485 Family members,
 9 including 2,384 spouses and 4,101 dependent children. The total number of Army employees and
 10 their Families directly affected under Alternative 1 is projected to be 10,757.

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

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

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

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

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

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

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

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

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

7 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 8 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 9 cumulative force reductions. Because of the maximum potential loss of 4,272 Soldiers and Army
 10 civilians under Alternative 1, EIFS estimates an additional 860 direct contract service jobs would
 11 be also lost. An additional 2,189 induced jobs would be lost because of the reduction in demand
 12 for goods and services within the ROI. The total reduction in employment is estimated to be
 13 7,321, a reduction of 1.2 percent from the total employed labor force in the ROI of 592,517.
 14 Income is estimated to reduce by \$382.4 million, a 0.6 percent decrease in the ROI in 2012.

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

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

1 **Housing**

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

5 **Schools**

6 Under Alternative 1, the decrease of 4,272 Soldiers and Army civilians would decrease the
7 number of children in the ROI by 4,101. Because there are no schools on Aberdeen Proving
8 Ground, the schools in Harford County are likely to be most affected by reductions in
9 enrollment. With total enrollment in Harford County schools near Aberdeen Proving Ground of
10 approximately 6,056, there could be significant impacts to schools associated with Alternative 1.
11 Elementary schools close to Aberdeen Proving Ground are likely to be most affected by the
12 decrease in enrollment associated with Alternative 1. Table 4.1-8 displays Aberdeen Proving
13 Ground school partnerships in Harford County which could be impacted by Alternative 1. The
14 schools with the higher percentage of Army children enrollment are likely to be more affected;
15 these include Roye-Williams Elementary School (66 percent), Churchville Elementary School
16 (20 percent), Meadowvale Elementary School (18 percent), Aberdeen Middle School (17
17 percent), and Aberdeen High School (17 percent) in Harford County (Table 4.1-8). If enrollment
18 in individual schools declines sharply, schools may need to reduce the number of teachers,
19 administrators, and other staff, and potentially close or consolidate with other schools within the
20 same school district should enrollment fall below sustainable levels.

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

32 **Public Services**

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

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

7 **Family Support Services and Recreation Facilities**

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

13 **Environmental Justice and Protection of Children**

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

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

1 **4.1.13 Energy Demand and Generation**

2 **4.1.13.1 Affected Environment**

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

14 **Electricity**

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

19 **Natural Gas**

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

27 **4.1.13.2 Environmental Effects**

28 **No Action Alternative**

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

33 **Alternative 1—Implement Force Reductions**

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

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

5 **4.1.14 Land Use Conflicts and Compatibility**

6 **4.1.14.1 Affected Environment**

7 **Regional Setting**

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

10 **Land Uses on the Installation**

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

1 **Surrounding Land Use**

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

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

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

21 **Joint Land Use Study**

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

1 **4.1.14.2 Environmental Effects**

2 **No Action Alternative**

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

10 **Alternative 1—Implement Force Reductions**

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

18 **4.1.15 Hazardous Materials and Hazardous Waste**

19 **4.1.15.1 Affected Environment**

20 **Hazardous Materials**

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

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

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

7 **Hazardous Waste Treatment, Storage, and Disposal**

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

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

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

25 **Hazardous Waste Investigation and Remediation Sites**

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

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

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

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

14 **Other Hazards**

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

18 **4.1.15.2 Environmental Effects**

19 **No Action Alternative**

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

26 **Alternative 1—Implement Force Reductions**

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

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

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

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

12 **4.1.16 Traffic and Transportation**

13 **4.1.16.1 Affected Environment**

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

19 All entrances to Aberdeen Proving Ground are accessible regionally from Interstate 95 (I-95),
20 which is a national freeway located 3 miles northwest of the installation. It connects Aberdeen
21 Proving Ground to Baltimore, Maryland; Washington, DC; and other points south; and
22 Philadelphia, Pennsylvania; Wilmington, Delaware; and other points north. U.S. 40 runs parallel
23 to I-95 and is closer to Aberdeen Proving Ground. These highways also connect the Northern
24 and Southern Peninsulas of Aberdeen Proving Ground because there are no on-installation roads
25 and bridges that connect the two peninsulas. Major state highways provide access to the main
26 installation gates (the Magnolia Road, Wise Road, and Hoadley Road gates) from I-95 and U.S.
27 40, including MD 22 (Aberdeen Thruway/Harford Boulevard), MD 715 (Shore Lane/Maryland
28 Boulevard), MD 755 (Edgewood Road), MD 24 (Emmorton Road), and MD 152 (Magnolia
29 Road) (Aberdeen Proving Ground, 2014b).

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

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

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

3 Aberdeen Proving Ground has Phillips AAF on the Northern Peninsula and Weide AHP on the
4 Southern Peninsula; neither is available for commercial or civilian access. Both helicopter and
5 fixed-wing aircraft use Phillips AAF. Located in the secured area south of Ruggles Golf Course,
6 Phillips AAF has one 8,300-foot and two 5,000-foot hard surfaced runways; one 35-foot by
7 35-foot helipad; three ramps totaling 43,750 square feet; and three bomb ramps totaling 518,000
8 square feet. Weide AHP, which is used exclusively for helicopters, is operated by the Maryland
9 ARNG (USACE, 2007).

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

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

25 **4.1.16.2 Environmental Effects**

26 **No Action Alternative**

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

31 **Alternative 1—Implement Force Reductions**

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

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

5 **4.1.17 Cumulative Effects**

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

11 **Reasonably Foreseeable Future Projects on Aberdeen Proving Ground**

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

19 **Reasonably Foreseeable Future Projects outside Aberdeen Proving Ground**

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

27 **No Action Alternative**

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

32 **Alternative 1—Implement Force Reductions**

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

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

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

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

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

4.2 Fort Belvoir, Virginia

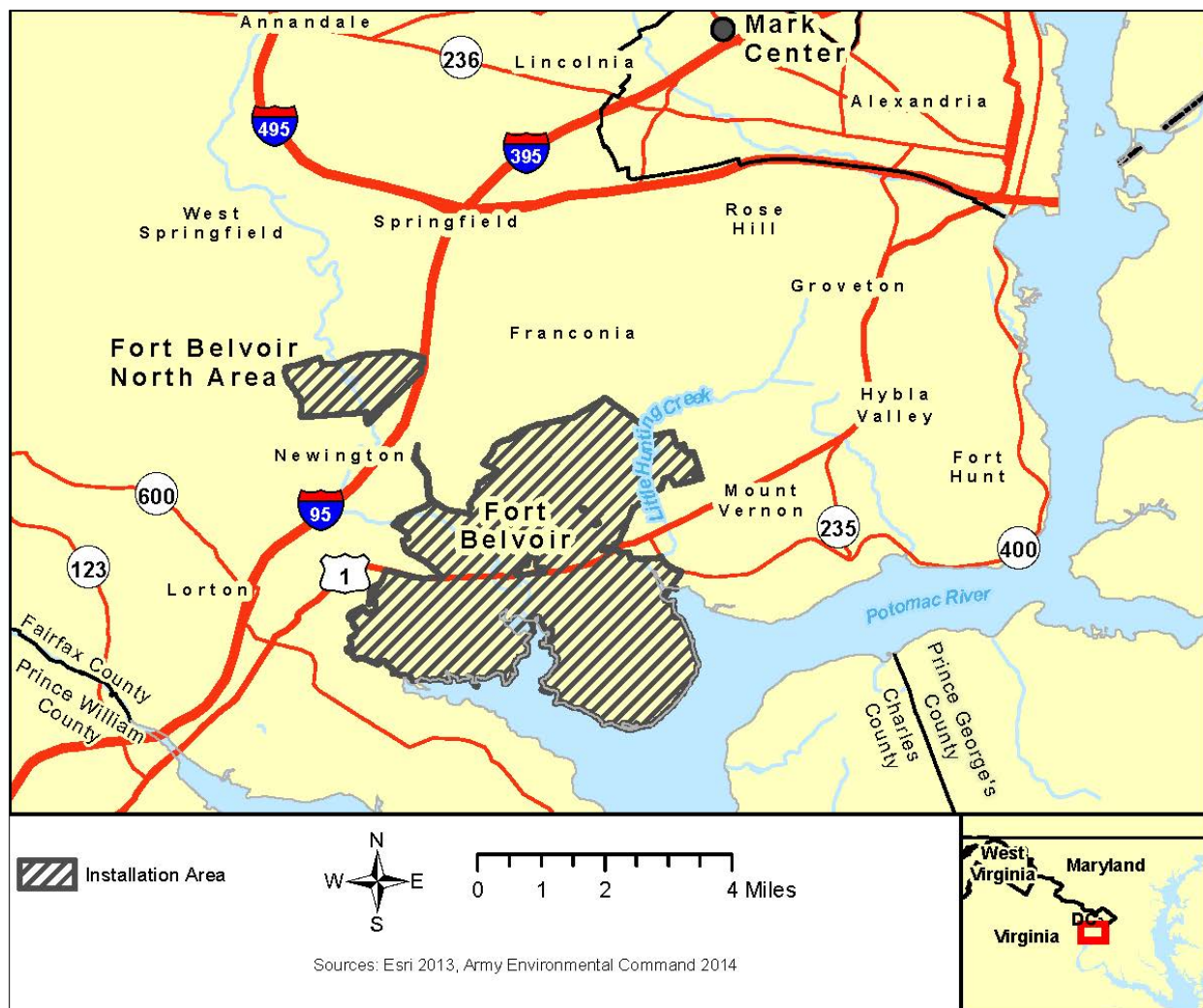
4.2.1 Introduction

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

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

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

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



1
 2 **Figure 4.2-1. Fort Belvoir, Virginia**

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

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

12 **4.2.2 Valued Environmental Components**

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

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

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

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

4

5 **4.2.3 Air Quality**

6 **4.2.3.1 Affected Environment**

7 Fort Belvoir is located in an area in nonattainment for PM_{2.5} and in marginal nonattainment for
 8 O₃. Federal regulations designate AQCRs in violation of the National Ambient Air Quality
 9 Standards (NAAQS) as nonattainment areas. The Washington Metropolitan area, including
 10 Fairfax County and Fort Belvoir, is AQCR 47. AQCR 47 was previously in nonattainment for
 11 CO; however, that portion of the airshed does not include Fairfax County (EPA, 2013).

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

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

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

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

SO ₂	CO	PM ₁₀	PM _{2.5}	NO _x	VOC
(tons per year)					
0.26	31.10	2.79	2.73	55.06	3.86

13 Source: Fort Belvoir (2013a)

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

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

21 **4.2.3.2 Environmental Effects**

22 **No Action Alternative**

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

26 **Alternative 1—Implement Force Reductions**

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

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

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

10 **4.2.4 Airspace**

11 **4.2.4.1 Affected Environment**

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

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

1 **4.2.4.2 Environmental Effects**

2 **No Action Alternative**

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

6 **Alternative 1—Implement Force Reductions**

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

12 **4.2.5 Cultural Resources**

13 **4.2.5.1 Affected Environment**

14 The affected environment for cultural resources at Fort Belvoir is the installation's footprint,
15 which consists of Fort Belvoir and six associated remote sites. The majority have been surveyed
16 for archaeological resources. These surveys indicate that the Belvoir Peninsula was occupied
17 11,500 years ago when the climate was cooler and the peninsula was a high upland
18 approximately 160 miles from the Atlantic coast (Fort Belvoir, 2013b). The archaeological sites
19 present at Fort Belvoir include artifact scatters that provide evidence for 8,000 years of human
20 habitation of the area. A total of 303 archaeological sites have been identified at the Main Post
21 and the installation's 6 associated remote sites. Of these, 15 sites have been determined eligible
22 for inclusion in the NRHP and 154 require additional study to determine their eligibility status.
23 One archaeological site, the Belvoir Manor Ruins and Fairfax Gravesite, is listed in the NRHP.

24 Fort Belvoir has completed architectural surveys of the majority of the buildings constructed
25 prior to 1946. Historic buildings at the installation date from the mid-19th century to the Cold
26 War Era. While Cold War Era buildings have been identified, a comprehensive survey of these
27 resources has not been completed. Completed surveys resulted in the identification of one
28 historic district, the Fort Belvoir Historic District, and nine historic buildings and structures that
29 are individually eligible for listing in the NRHP. The Fort Belvoir Historic District encompasses
30 269 acres and consists of 213 contributing and 92 non-contributing resources dating from 1921
31 to 1953 (Fort Belvoir, 2013b). Five of the nine individually eligible resources are part of the Fort
32 Belvoir Military Railroad Multiple-Property Listing. The remaining four NRHP eligible
33 resources include the Cold War Era U.S. Army Package Power Reactor (SM-1), Camp A.A.
34 Humphreys Pump Station and Filter Building, Thermo-Con House (Building 172) and the
35 Amphitheater (Facility 2287).

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

5 The latest Fort Belvoir ICRMP was updated in 2013. The document outlines the procedures for
6 the management of cultural resources at the installation in accordance with applicable federal
7 laws and Army policy. At the time the ICRMP was drafted, a programmatic agreement for
8 streamlining NHPA, Section 106 compliance was in progress and is anticipated to be finalized in
9 2014. The ICRMP does include standard operating procedures for compliance with Section 106.

10 **4.2.5.2 Environmental Effects**

11 **No Action Alternative**

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

20 **Alternative 1—Implement Force Reductions**

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

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

1 **4.2.6 Noise**

2 **4.2.6.1 Affected Environment**

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

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

24 **4.2.6.2 Environmental Effects**

25 **No Action Alternative**

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

32 **Alternative 1—Implement Force Reductions**

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

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

3 **4.2.7 Soils**

4 **4.2.7.1 Affected Environment**

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

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

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

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

27 **4.2.7.2 Environmental Effects**

28 **No Action Alternative**

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

32 **Alternative 1—Implement Force Reductions**

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

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

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

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

13 **4.2.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 14 **Species)**

15 **4.2.8.1 Affected Environment**

16 **Vegetation**

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

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

1 **Table 4.2-3. Fort Belvoir Plant Communities**

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

2 Source: U.S. Army (2014a)

1 **Wildlife**

2 Fort Belvoir has designated three significant habitat areas within the installation as wildlife
3 refuges: the 1,480-acre Accotink Bay Wildlife Refuge along Accotink and Pohick Bays, the
4 234-acre Jackson Miles Abbott Wetland Refuge along Dogue Creek, and the 126-acre former
5 T-17 training range along Gunston Cove. Fort Belvoir has also designated an additional 740
6 acres as the Forest and Wildlife Corridor through the Main Post, and 204 acres as the Accotink
7 Conservation Corridor through FBNA. These large areas of habitat not only are valuable by
8 themselves, but provide for ecological connectivity through the installation to the other regional
9 habitats (e.g., Huntley Meadows County Park to the northeast and the federal, state and regional
10 refuge and parks on Mason Neck peninsula to the southwest).

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

20 **Threatened and Endangered Species**

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

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

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

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

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

9 **4.2.8.2 Environmental Effects**

10 **No Action Alternative**

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

15 **Alternative 1—Implement Force Reductions**

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

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

25 **4.2.9 Wetlands**

26 **4.2.9.1 Affected Environment**

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

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

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

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

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

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

6 **4.2.9.2 Environmental Effects**

7 **No Action Alternative**

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

13 **Alternative 1—Implement Force Reductions**

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

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

1 **4.2.10 Water Resources**

2 **4.2.10.1 Affected Environment**

3 **Surface Water/Watersheds**

4 Fort Belvoir contains approximately 200 miles of perennial and intermittent streams (U.S. Army,
5 2014b). The primary watersheds on Fort Belvoir include those associated with non-tidal
6 Accotink Creek, Dogue Creek, and Pohick Creek and the tidal Accotink Bay, Gunston Cove,
7 Pohick Bay, and Potomac River (U.S. Army, 2014c). Accotink Creek, Dogue Creek, and Pohick
8 Creek drain most of the installation and much of the urbanized Fairfax County. Most surface
9 waters on the installation drain to the lower Accotink, Dogue, or Pohick Creeks as well as to the
10 Potomac River. Dogue Creek runs through the far eastern side of the installation and Pohick
11 Creek forms part of the southwestern boundary, eventually draining into their respective bays.
12 Accotink Creek runs south through the middle of the installation. The meeting of Accotink Bay
13 and Pohick Bay forms Gunston Cove. Additionally, Mason Run, other unnamed tributaries, and
14 man-made ponds are present within the installation boundaries (U.S. Army, 2002, as cited by
15 USACE, 2007).

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

26 Protections for surface waters are provided by compliance with the Virginia Stormwater Program
27 (9 VAC 25-870) and associated implementation of SWPPPs, application of Energy
28 Independence and Security Act Section 438 and stormwater management guidelines, and siting
29 of development at appropriate distances from surface waters and floodplains
30 (U.S. Army, 2014c).

31 **Groundwater**

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

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

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

11 **Water Supply**

12 Potable water treatment and supply on Fort Belvoir is handled by Fairfax Water (formerly
13 Fairfax County Water Authority) whereas most of the distribution system on the installation is
14 owned and operated by American Water. Groundwater wells do not supply any drinking water to
15 the installation. Of the 220 groundwater wells located within Fort Belvoir, all active wells either
16 function as monitoring wells or water supply for golf course irrigation and horse stables
17 (USACE, 2007). Water supply infrastructure for the installation includes the Frederick P.
18 Griffith, Jr. Water Treatment Plant, with a 120 mgd capacity (Fairfax County Water Authority,
19 2006, as cited by U.S. Army, 2014c), and the Corbalis Water Treatment Plant and three
20 vault/pump stations.

21 American Water owns and operates the distribution system on the Main Post although some
22 individual installation areas are not covered by that contract. Water distribution infrastructure
23 includes 78 miles of water main pipes, two pumping stations, and four storage tanks (U.S. Army,
24 2014c). Total water available to Fort Belvoir through a contract with Fairfax Water is 4.6 mgd
25 peak flow. In 2012, Fort Belvoir had an average water demand of 2.3 mgd and a peak demand of
26 3.5 mgd (U.S. Army, 2014b).

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

32 **Wastewater**

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

1 upstream of the installation, the plant received a daily average wastewater flow of 45 mgd in the
2 mid-2000s and had a treatment capacity of 67 mgd (Osei-Kwadwo, 2007, as cited by USACE,
3 2007). Treatment processes reduce up to 99.5 percent of pollutants such as bacteria, nutrients,
4 and particulates from the received wastewater (Fairfax County DPWES, 2011). Connections
5 exist between the sanitary sewer and stormwater systems. During wet weather events,
6 stormwater can enter the sanitary sewer system leading to overflow and performance issues (U.S.
7 Army, 2014c).

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

15 **Stormwater**

16 Stormwater management for developed areas of Fort Belvoir consists of almost 60 miles of
17 storm drain pipes and over 22 miles of impervious drainage ditches (USACE, 2007). Less
18 developed and little used areas have more limited systems served by drainage ditches and
19 culverts. Stormwater drainage from the installation flows to surface waters. Stormwater BMPs
20 implemented through the installation include detention ponds, oil/water separators (U.S. Army,
21 2001), a rock catchment, management ponds, underground storage/detention, filter systems,
22 bioretention systems, rain gardens, and natural infiltration areas.

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

28 The construction of many developed areas on Fort Belvoir prior to the institution of stormwater
29 regulations resulted in a lack of or inadequate stormwater management infrastructure. Due to
30 these shortcomings, stormwater runoff is frequently discharged directly to streams and has led to
31 stream and soil erosion, safety issues, pollution, and infrastructure degradation (USACE, 2007,
32 2014c). During the 2005 BRAC process, Fort Belvoir corrected existing stormwater management
33 and protection problems and incorporated methods such as the use of BMPs and SWPPPs into
34 future planning and development designs (U.S. Army, 2014c). This initiative led to reduction in
35 unmanaged stormwater runoff areas.

1 **Floodplains**

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

12 **4.2.10.2 Environmental Effects**

13 **No Action Alternative**

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

21 **Alternative 1—Implement Force Reductions**

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

1 **4.2.11 Facilities**

2 **4.2.11.1 Affected Environment**

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

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

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

18 **4.2.11.2 Environmental Effects**

19 **No Action Alternative**

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

22 **Alternative 1—Implement Force Reductions**

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

1 **4.2.12 Socioeconomics**

2 **4.2.12.1 Affected Environment**

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

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

13 **Population and Demographics**

14 Using 2013 as a baseline, Fort Belvoir has a total working population of 45,867, consisting of
 15 active component Soldiers and Army civilians, students and trainees, other military services,
 16 civilians and contractors. Of the total working population, 9,721 were permanent party Soldiers
 17 and Army civilians. The population that lives on Fort Belvoir consists of 3,376 Soldiers and their
 18 5,125 Family members, for a total on-installation resident population of 8,501. The portion of the
 19 Soldiers, Army civilians, and Family members living off the installation is estimated to be
 20 15,977. Additionally, there are 280 students and trainees associated with the installation.

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

24 **Table 4.2-5. Population and Demographics, 2012**

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

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

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

2

3 **Table 4.2-6. Racial and Ethnic Composition, 2012**

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

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

5 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

1 **Employment and Income**

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

7 **Table 4.2-7. Employment and Income, 2012**

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

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

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

1 **Arlington County**

2 According to the U.S. Census Bureau, professional, scientific, management, administrative and
3 waste management services account for the greatest share of total workforce in Arlington County
4 (28 percent). Public administration is the second largest employment sector (18 percent),
5 followed by educational services, and health care and social assistance (15 percent). The Armed
6 Forces account for 2 percent of the county's workforce. The remaining 10 industries account for
7 39 percent of the workforce.

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

11 **Fairfax County**

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

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

20 **Loudoun County**

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

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

29 **Prince William County**

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

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

3 **Stafford County**

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

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

12 **City of Alexandria**

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

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

21 **City of Fairfax**

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

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

30 **City of Falls Church**

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

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

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

5 **City of Manassas**

6 According to the U.S. Census Bureau, professional, scientific, management, administrative and
7 waste management services sector account for the greatest share of total workforce in Manassas
8 City (16 percent). Construction is the second largest employment sector (15 percent), followed
9 by educational services, and health care and social assistance (14 percent). The Armed Forces
10 account for less than 1 percent of the county's workforce. The remaining 10 industries employ
11 55 percent of the workforce.

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

15 **City of Manassas Park**

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

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

24 **Housing**

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

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

3 **Schools**

4 Approximately 90.2 percent of the estimated 2,287 children in grades kindergarten through 12
5 living on Fort Belvoir attend public schools (U.S. Census Bureau, 2012b). There are a total of
6 242 schools and centers in the Fairfax County public school system, including elementary,
7 middle, and high schools, along with alternative schools and special education centers.
8 Enrollment within these schools for the 2013-2014 school year is 184,625 students, which
9 accounts for the largest enrollment within a school system in Virginia and the 11th largest within
10 the U.S. (Fairfax County Public Schools, 2013). The growth in enrollment between the 2012-
11 2013 and 2013-2014 school years was estimated to be 2.1 percent, and is a rate that is expected
12 to continue for the next 10 years. To address the increase in enrollment, the Fairfax County
13 Public School system is continuously implementing capital projects, including the construction
14 of new schools as well as renovations and maintenance of infrastructure on existing schools
15 (Fairfax County Public Schools, 2013).

16 **Public Health and Safety**

17 ***Police Services***

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

23 ***Fire and Emergency Services***

24 Fire response operations are currently located in four fire stations and one fire prevention office
25 on Fort Belvoir: Station 463, Abbott Road, North Post; Station 464, Barta Road, FBNA; Station
26 465 and the Fire Prevention Office, Gunston Road, South Post; and Station 466, Gavin Road,
27 Davison AAF. Fire and rescue departments, with 138 fire and emergency service locations
28 within the Northern Virginia region, provide cooperative emergency services through a
29 memorandum of agreement known as the Northern Virginia Emergency Service Mutual
30 Response Agreement. Fort Belvoir is among the signatories of this memorandum of agreement,
31 which sets standardized response protocols and operational procedures for the fire, rescue, and
32 emergency medical service agencies for the Northern Virginia jurisdictions that are signatories to
33 this agreement.

34 ***Medical Facilities***

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

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

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

15 **Family Support Services**

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

27 **Recreation Facilities**

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

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

3 **4.2.12.2 Environmental Effects**

4 **No Action Alternative**

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

9 **Alternative 1—Implement Force Reductions**

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

13 ***Population and Economic Impacts***

14 Alternative 1 would result in the loss of 4,565⁷ Army positions (2,885 Soldiers and 1,680 Army
15 civilians), each with an average annual income of \$46,760 and \$78,963 respectively. In addition,
16 this alternative would affect an estimated 6,929 Family members (2,547 spouses and 4,382
17 children). The total number of Army employees and their Family members directly affected
18 under Alternative 1 is projected to be 11,494.

19 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
20 forecasted economic impact value falls outside the historical positive or negative ranges. Table
21 4.2-8 shows the deviation from the historical average that would represent a significant change
22 for each parameter. The last row summarizes the deviation from the historical average for the
23 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
24 by the EIFS model. Based on the EIFS analysis, changes in population, income, employment,
25 and sales in the ROI under Alternative 1 fall within the historical range and are not categorized
26 as a significant impact.

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

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

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

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

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

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

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

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

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

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

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

12 **Housing**

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

16 **Schools**

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

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

1 **Public Services**

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

12 **Family Support Services and Recreation Facilities**

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

18 **Environmental Justice and Protection of Children**

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

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

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

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

11 **4.2.13 Energy Demand and Generation**

12 **4.2.13.1 Affected Environment**

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

22 **Electricity**

23 Dominion Virginia Power supplies electricity to both the main installation and FBNA. The
24 extensive electric distribution system on the main installation has been privatized since August
25 2007 under a 50-year contract with Dominion Virginia Power. The privatization agreement
26 excludes FBNA, Aerospace Data Facility-East, Humphreys Engineer Center, and Building 2310,
27 which continue to be managed by the federal government. Dominion Virginia Power provides
28 electric power to the main installation from two 34.5-kilovolt (kV) distribution circuits. Several
29 overhead feeder lines serve the various areas of the main installation, with some lines being
30 interconnected to form looped feeder areas. Power is stepped down to lower voltages for local
31 use throughout the installation using additional substations. Dominion Virginia Power provides
32 electric service to the FBNA boundary, as well as distribution lines within the installation. It
33 constructed off-site transmission lines and a new substation to provide electric service (U.S.
34 Army, 2013).

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

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

3 **Natural Gas**

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

9 **4.2.13.2 Environmental Effects**

10 **No Action Alternative**

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

15 **Alternative 1—Implement Force Reductions**

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

21 **4.2.14 Land Use Conflicts and Compatibility**

22 **4.2.14.1 Affected Environment**

23 **Regional Setting**

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

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

12 **Land Use at Fort Belvoir**

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

35 **Surrounding Land Use**

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

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

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

18 **4.2.14.2 Environmental Effects**

19 **No Action Alternative**

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

34 **Alternative 1—Implement Force Reductions**

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

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

5 **4.2.15 Hazardous Materials and Hazardous Waste**

6 **4.2.15.1 Affected Environment**

7 **Hazardous Materials**

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

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

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

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

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

3 **Hazardous Waste Treatment, Storage, and Disposal**

4 The RCRA/Waste Management Program at Fort Belvoir is responsible for the storage, use,
5 characterization, manifesting, remediation, and proper disposal of all hazardous waste generated
6 at the installation. Fort Belvoir has had an active RCRA Program in place for more than
7 20 years.

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

11 **Hazardous Waste Investigation and Remediation Sites**

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

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

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

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

1 **Others Hazards**

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

5 **4.2.15.2 Environmental Effects**

6 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

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

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

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

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

29 **4.2.16 Traffic and Transportation**

30 **4.2.16.1 Affected Environment**

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

1 Regional Road Network

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

- 6 • I-95, including I-395 and I-495 (Capital Beltway), is one of the busiest and most
7 congested transportation corridors in the country. In addition to indirectly facilitating
8 traffic to both the Main Post and FBNA, the I-95 roadways serve as major commuter
9 corridors for the entire Washington, DC, National Capital Region, and carry long-
10 distance traffic along the Eastern Seaboard. Region-wide, the I-95 roadway serves
11 commuter traffic from predominantly residential counties to the south to major
12 employment centers in Washington, DC, and Arlington County.
- 13 • Virginia Route 286 (Fairfax County Parkway) is an east-west highway that was recently
14 widened to four lanes as part of the construction of FBNA, which has significantly
15 reduced the travel time and increased accessibility between Fort Belvoir and western
16 parts of Fairfax County. It directly serves both Fort Belvoir's Main Post and FBNA as the
17 main access to I-95. The roadway bisects the northern Main Post and is the eastern
18 boundary of FBNA.
- 19 • U.S. Route 1 (Richmond Highway) is a north-south highway that primarily serves local
20 trips but can be used as an alternate route to I-95 because it runs parallel to the interstate.
21 U.S. Route 1 physically divides the Main Post into North Post and South Post and is the
22 primary access route to the installation. This highway is currently four lanes as it passes
23 through Fort Belvoir and is often congested due to heavy demand from both Fort Belvoir
24 and the region.
- 25 • Virginia Route 289 (Franconia-Springfield Parkway) is an east-west highway that is six
26 lanes along its entire length and includes several interchanges as well as some signalized
27 and non-signalized intersections. It is located just north of FBNA.
- 28 • The George Washington Memorial Parkway is a four-lane roadway adjacent to the
29 Potomac River west and south of Washington, DC. Coupled with Mount Vernon
30 Memorial Highway, Main Post traffic with an origin or destination via Old Town
31 Alexandria can use this roadway (USACE, 2014).

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

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

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

11 Local roadways that directly serve FBNA include the following:

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

19 **Installation Road Network**

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

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

29 **Access Control Points**

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

1 **Transit**

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

4 ***Rail***

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

9 ***Bus and Shuttle Service***

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

14 ***Pedestrian/Bicycle Network***

15 Fort Belvoir has a fairly well-developed network of pedestrian trails and more recently has
16 completed the construction of dedicated bicycle lanes on several primary roads as part of BRAC
17 2005 (USACE, 2014).

18 **4.2.16.2 Environmental Effects**

19 **No Action Alternative**

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

25 **Alternative 1—Implement Force Reductions**

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

1 **4.2.17 Cumulative Effects**

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

9 **Reasonably Foreseeable Future Projects on Fort Belvoir**

10 Additional actions identified by the installation that could have cumulative impacts include the
11 52 short term projects proposed in the RPMP EIS, as well as longer term proposed actions.

12 **Reasonably Foreseeable Future Projects outside Fort Belvoir**

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

19 ***No Action Alternative***

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

24 ***Alternative 1—Implement Force Reductions***

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

27 The socioeconomic impact within the ROI, as described in Section 4.2.12.2 with a reduction of
28 4,535 Soldiers and Army civilians, would be minor and adverse on population, the regional
29 economy, schools, and housing. Fort Belvoir is located in Fairfax County in the Washington,
30 DC, metropolitan area. Because of the large employment base, diverse economy, and economic
31 growth in the region, the ROI would be less vulnerable to these force reductions because other
32 industries and considerable economic activity occur within the ROI.

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

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1 **4.3 Fort Benning, Georgia**

2 **4.3.1 Introduction**

3 Fort Benning was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.1.1 of the
 5 2013 PEA.

6 Fort Benning’s 2011 baseline permanent party population was 17,501. In this SPEA, Alternative
 7 1 assesses a potential population loss of 10,800, including approximately 9,493 permanent party
 8 Soldiers and 1,274 Army civilians.

9 **4.3.2 Valued Environmental Components**

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

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

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

1 **4.3.3 Air Quality**

2 **4.3.3.1 Affected Environment**

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

6 **4.3.3.2 Environmental Effects**

7 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

13 The 2013 PEA concluded that the force reductions at Fort Benning would result in long-term,
14 minor, beneficial impacts to air quality due to reduced operations and maintenance activities, and
15 reduced vehicle miles travelled associated with the facility. The increased force reductions under
16 Alternative 1 would continue to result in beneficial air quality effects assuming a corresponding
17 decrease in operations, training, and vehicle travel to and from Fort Benning. The size of this
18 beneficial impact under Alternative 1 would be slightly larger than anticipated at the time of the
19 2013 PEA.

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

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

29 **4.3.4 Airspace**

30 **4.3.4.1 Affected Environment**

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

1 **4.3.4.2 Environmental Effects**

2 **No Action Alternative**

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

7 **Alternative 1—Implement Force Reductions**

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

13 **4.3.5 Cultural Resources**

14 **4.3.5.1 Affected Environment**

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

17 **4.3.5.2 Environmental Effects**

18 **No Action Alternative**

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

25 **Alternative 1—Implement Force Reductions**

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

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

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

10 **4.3.6 Noise**

11 **4.3.6.1 Affected Environment**

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

14 **4.3.6.2 Environmental Effects**

15 **No Action Alternative**

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

24 **Alternative 1—Implement Force Reductions**

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

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

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

3 **4.3.7 Soils**

4 **4.3.7.1 Affected Environment**

5 The soils affected environment on the installation remains the same as was discussed in Section
6 4.1.6.1 of the 2013 PEA.

7 **4.3.7.2 Environmental Effects**

8 **No Action Alternative**

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

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

17 **Alternative 1—Implement Force Reductions**

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

24 **4.3.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 25 Species)**

26 **4.3.8.1 Affected Environment**

27 Fort Benning's affected environment for biological resources can be found in Section 4.1.7 of the
28 2013 PEA. The affected environment remains essentially the same in this SPEA with one
29 change: a new plant species, Georgia rockcress (*Arabis georgiana*), and its critical habitat are
30 found on Fort Benning and are proposed for federal listing.

1 **4.3.8.2 Environmental Effects**

2 **No Action Alternative**

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

7 **Alternative 1—Implement Force Reductions**

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

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

21 **4.3.9 Wetlands**

22 **4.3.9.1 Affected Environment**

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

25 **4.3.9.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative in the 2013 PEA, less than significant impacts to wetlands were
28 anticipated from continuing training, to include impacts from sedimentation created by ground
29 disturbance from wheeled and tracked vehicles. Under the No Action Alternative of this SPEA
30 the impacts to Fort Benning would remain the same as those discussed in Section 4.1.8.2 of the
31 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

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

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

12 **4.3.10 Water Resources**

13 **4.3.10.1 Affected Environment**

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

17 **4.3.10.2 Environmental Effects**

18 **No Action Alternative**

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

25 **Alternative 1—Implement Force Reductions**

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

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

7 **4.3.11 Facilities**

8 **4.3.11.1 Affected Environment**

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

11 **4.3.11.2 Environmental Effects**

12 **No Action Alternative**

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

17 **Alternative 1—Implement Force Reductions**

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

1 **4.3.12 Socioeconomics**

2 **4.3.12.1 Affected Environment**

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

13 **Population and Demographics**

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

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

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

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

3 **Table 4.3-2. Population and Demographics, 2012**

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

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

6 **Table 4.3-3. Racial and Ethnic Composition, 2012**

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

7 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

1 **Employment and Income**

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

7 **Table 4.3-4. Employment and Income, 2012**

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

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

11 **Chattahoochee County, Georgia**

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

1 **Harris County, Georgia**

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

9 **Lee County, Alabama**

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

16 **Marion County, Georgia**

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

24 **Muscogee County, Georgia**

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

33 **Russell County, Alabama**

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

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

4 **Talbot County, Georgia**

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

13 **Housing**

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

21 **Schools**

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

26 **Public Health and Safety**

27 **Police Services**

28 While the Provost Marshal provides on-installation law enforcement services, according to the
29 2013 PEA, there are approximately 1,000 off-installation law-enforcement officers in the ROI.

30 **Fire and Emergency Services**

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

1 **Medical Facilities**

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

4 **Family Support Services**

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

11 **Recreation Facilities**

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

19 **4.3.12.2 Environmental Effects**

20 **No Action Alternative**

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

25 **Alternative 1—Implement Force Reductions**

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

Population and Economic Impacts

Alternative 1 would result in the loss of 10,767⁸ Army positions (9,493 Soldiers and 1,274 Army civilians), each with an average annual income of \$46,760 and \$56,723 respectively. In addition, this alternative would affect an estimated 6,008 spouses and 10,336 children, for a total estimated potential impact to 16,344 Family members. The total population of Army employees and their Family members that would be directly affected is projected to be 27,111 under Alternative 1.

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

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

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

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

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

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

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

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

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

14 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$727.9 million.
 15 There would also be a loss in sales tax receipts to local and state governments. The state and
 16 average local sales tax for Georgia is 7.0 percent and Alabama is 8.5 percent (Tax Foundation,
 17 2014). To estimate sales tax reductions, information was utilized on the proportion of sales that
 18 would be subject to sales taxes on average across the country. According to the U.S. Economic
 19 Census an estimated 16 percent of economic output or sales would be subject to sales tax (U.S.
 20 Economic Census, 2012). This percentage and applicable tax rates were applied to the estimated
 21 decrease in sales of \$727.9 million, resulting in an estimated sales tax receipts decrease ranging
 22 from \$8.1 million to \$9.9 million under Alternative 1.

23 Of the 457,305 people (including those residing on Fort Benning) who live within the ROI,
 24 27,111 Army employees and their Families are predicted to no longer reside in the area under
 25 Alternative 1, resulting in a significant population reduction of 5.9 percent. This number possibly
 26 overstates potential population impacts, as some of the people no longer employed by the
 27 military would continue to live and work within the ROI, finding employment in other industry
 28 sectors. A small number of displaced forces may stay in the ROI and find work, and others may
 29 remain unemployed and possibly affect the unemployment rate in the ROI. However, Fort
 30 Benning is a dominant employer and economic driver in the ROI. As a result, most displaced
 31 forces would likely move out of the area to seek other opportunities with the Army or elsewhere.

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

7 **Housing**

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

13 **Schools**

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

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

1 **Public Services**

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

10 **Family Support Services and Recreation Facilities**

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

16 **Environmental Justice and Protection of Children**

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

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

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

7 **4.3.13 Energy Demand and Generation**

8 **4.3.13.1 Affected Environment**

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

11 **4.3.13.2 Environmental Effects**

12 **No Action Alternative**

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

17 **Alternative 1—Implement Force Reductions**

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

21 **4.3.14 Land Use Conflicts and Compatibility**

22 **4.3.14.1 Affected Environment**

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

25 **4.3.14.2 Environmental Effects**

26 **No Action Alternative**

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

1 Alternative on land use are expected to be the same as those described in Section 4.1.13.2 of the
2 2013 PEA.

3 **Alternative 1—Implement Force Reductions**

4 The 2013 PEA concluded that the force reductions at Fort Benning would result in minor,
5 adverse impacts to land use. With the departure of Soldiers, Army civilians, and their Family
6 members, any resulting decrease in large arms fire and night-time training exercises would not
7 likely be sufficient to change current NZ contours and associated land use impacts. Under
8 Alternative 1, adverse impacts to land use would be similar to that anticipated at the time of the
9 2013 PEA, resulting in minor impacts.

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

15 **4.3.15 Hazardous Materials and Hazardous Waste**

16 **4.3.15.1 Affected Environment**

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

24 **4.3.15.2 Environmental Effects**

25 **No Action Alternative**

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

29 **Alternative 1—Implement Force Reductions**

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

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

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

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

14 **4.3.16 Traffic and Transportation**

15 **4.3.16.1 Affected Environment**

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

19 **4.3.16.2 Environmental Effects**

20 **No Action Alternative**

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

28 **Alternative 1—Implement Force Reductions**

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

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

4 **4.3.17 Cumulative Effects**

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

10 **Reasonably Foreseeable Future Projects on Fort Benning**

11 A number of reasonably foreseeable future projects have been identified at Fort Benning that
12 would occur by 2020, to include school replacements, a new commissary facility, and RCI Town
13 Center project. Projects listed below are updates or additional projects to those presented in the
14 2013 PEA cumulative impacts analysis. These projects are not expected to result in cumulative
15 impacts. Additional actions identified by the installation that could have cumulative impacts
16 include the following:

- 17 • **Training Land Expansion Program (TLEP):** The Army proposes to acquire up to
18 82,800 acres of additional training lands near Fort Benning by approximately 2017.
19 Currently, the Army is undergoing a study to assess environmental and socioeconomic
20 impacts of the acquisition of additional training lands in proximity to Fort Benning. The
21 TLEP Draft EIS was published in May 2011 for comment per the requirements of NEPA.
22 The TLEP Final EIS and final decision on land purchase is deferred until more
23 information is available on Army fiscal and force realignments.

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

- 1 • **Training Enhancement Proposals:** Fort Benning has three training proposals:
2 installation level impacts of realignment of the 3/3rd ABCT to an IBCT in 2015,
3 relocation of the heavy maneuver portion of the Army Reconnaissance Course in 2016 to
4 the Good Hope Maneuver Training Area, and enhancement of off-road maneuver areas in
5 the Good Hope Maneuver Training Area as funding becomes available. Fort Benning is
6 preparing an installation-specific EA and Biological Assessment to study these training
7 proposals. Initial indications are that environmental impacts generally would be reduced
8 in heavy maneuver areas, including reduced impacts to the RCW during training in and
9 around the Southern Maneuver Training Area. There would be slightly increased soil
10 erosion impacts in the Good Hope Maneuver Training Area. In other areas of Fort
11 Benning, the amount of tracked vehicle training impacts in heavy maneuver areas and
12 training ranges would be substantially reduced, thereby reducing the amount of
13 disturbance to soils, vegetation, and water resources.
- 14 • **Energy Initiative Task Force:** Georgia Power is partnering with Fort Benning to
15 establish a solar energy collection system on approximately 500 acres on the installation
16 by 2016. This proposal involves re-designation of a relatively small land area to that use,
17 and is expected to have energy efficiencies and independence benefits for Fort Benning.

18 **Reasonably Foreseeable Future Projects outside Fort Benning**

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

- 25 • **165 Highway Connector to the Eddy Bridge:** Russell County, Alabama, planners
26 propose to fund construction of a direct route from Fort Mitchell, Alabama, into the
27 western Fort Benning ACP, at a date to be determined. Siting of the roadway is
28 attempting to avoid as many environmental resources on Fort Benning as possible, but it
29 may involve reconstruction of a major bridge across the Chattahoochee River,
30 (constructed in 1964), or other cultural resources. This project may also affect designated
31 potential future RCW habitat that may require formal consultation with USFWS.
32 Additionally, current siting of this project crosses Uchee Creek, which has been
33 designated as critical habitat for the shiny-rayed pocketbook mussel. Non-federal
34 proponents will prepare an EA for this project. Current siting of this roadway could cross
35 an ACUB property. This proposal is intended to not only assist traffic flow to/on Fort
36 Benning, but also to energize development in the Alabama communities.

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

7 **No Action Alternative**

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

11 **Alternative 1—Implement Force Reductions**

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

21 The socioeconomic impact under Alternative 1, as described in Section 4.3.12.2 with a loss of
22 10,767 Soldiers and Army civilians, could lead to significant impacts to the population, schools,
23 and housing. Fort Benning is an important economic driver in the Columbus metropolitan area,
24 with total employment on the installation of more than 17,000. Specifically, in Muscogee and
25 Chattahoochee counties, the Armed Forces account for 12 and 68 percent of the workforce,
26 respectively, demonstrating the importance of installation to employment opportunities in the
27 region. The considerable reliance on the installation, in combination with 10,767 lost Army jobs,
28 could lead to reduced Fort Benning and supporting activities in the ROI, could lead to reduced
29 supporting activities in the ROI, additional losses in jobs and income, with fewer job
30 opportunities for displaced Army employees in the ROI.

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

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

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

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1 **4.4 Fort Bliss, Texas**

2 **4.4.1 Introduction**

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

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

8 **4.4.2 Valued Environmental Components**

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

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

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

15

1 **4.4.3 Air Quality**

2 **4.4.3.1 Affected Environment**

3 The air quality affected environment of the Fort Bliss ROI remains the same as described in
4 Section 4.2.2.1 of the 2013 PEA. Fort Bliss, itself, is not within an EPA-designated
5 nonattainment or maintenance area, but the facility is adjacent to the city of El Paso, which is
6 designated a nonattainment area for PM₁₀, and a maintenance area for CO (EPA, 2013).

7 **4.4.3.2 Environmental Effects**

8 **No Action Alternative**

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

13 **Alternative 1—Implement Force Reductions**

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

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

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

1 **4.4.4 Airspace**

2 **4.4.4.1 Affected Environment**

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

5 **4.4.4.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative, impacts to airspace would be similar to those described in the
8 2013 PEA (Section 4.2.3.2) with minor, adverse impacts as a result of potential airspace conflicts
9 between military and civilian use. There would be no new or adjustments to existing airspace
10 classifications and restrictions.

11 **Alternative 1—Implement Force Reductions**

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

19 **4.4.5 Cultural Resources**

20 **4.4.5.1 Affected Environment**

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

23 **4.4.5.2 Environmental Effects**

24 **No Action Alternative**

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

29 **Alternative 1—Implement Force Reductions**

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

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

11 **4.4.6 Noise**

12 **4.4.6.1 Affected Environment**

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

16 **4.4.6.2 Environmental Effects**

17 **No Action Alternative**

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

22 **Alternative 1—Implement Force Reductions**

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

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

1 **4.4.7 Soils**

2 **4.4.7.1 Affected Environment**

3 The soils affected environment on the installation remains the same as described in Section
4 4.2.6.1 of the 2013 PEA.

5 **4.4.7.2 Environmental Effects**

6 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

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

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

20 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
21 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
22 Bliss, the Army would ensure that adequate staffing remains so that the installation would
23 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
24 Fort Bliss would be beneficial and remain the same as those discussed in Section 4.2.6.2 of the
25 2013 PEA.

26 **4.4.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered
27 Species)**

28 **4.4.8.1 Affected Environment**

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

1 **4.4.8.2 Environmental Effects**

2 **No Action Alternative**

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

10 **Alternative 1—Implement Force Reductions**

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

21 **4.4.9 Wetlands**

22 **4.4.9.1 Affected Environment**

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

27 **4.4.9.2 Environmental Effects**

28 **No Action Alternative**

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

31 **Alternative 1—Implement Force Reductions**

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

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

11 **4.4.10 Water Resources**

12 **4.4.10.1 Affected Environment**

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

16 **4.4.10.2 Environmental Effects**

17 **No Action Alternative**

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

21 **Alternative 1—Implement Force Reductions**

22 Beneficial impacts to water resources were anticipated from implementation of force reductions
23 under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and an
24 increase in available wastewater treatment capacity. Increased force reductions under Alternative
25 1 of this SPEA would continue to have the same beneficial impacts to water supplies and
26 wastewater capacity.

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

1 **4.4.11 Facilities**

2 **4.4.11.1 Affected Environment**

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

12 **4.4.11.2 Environmental Effects**

13 **No Action Alternative**

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

18 **Alternative 1—Implement Force Reductions**

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

32 **4.4.12 Socioeconomics**

33 **4.4.12.1 Affected Environment**

34 As described in the 2013 PEA, most of the Fort Bliss' training areas and ranges (greater than
35 80 percent) are located in New Mexico, and the cantonment area is located adjacent to El Paso,

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

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

14 **Population and Demographics**

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

23 In 2012, the population of the ROI was over 1 million. Between 2010 and 2012, the population
 24 increased in Doña Ana, Otero, and El Paso counties between 2 and 4 percent (Table 4.4-2). The
 25 racial and ethnic composition of the ROI is presented in Table 4.4-3 below (U.S. Census Bureau,
 26 2012a) and indicates that there are considerably more Hispanic populations in El Paso, Texas,
 27 than in the state as a whole.

28 **Table 4.4-2. Population and Demographics, 2012**

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

29

1 **Table 4.4-3. Racial and Ethnic Composition, 2012**

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

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

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

12 **Table 4.4-4. Employment and Income, 2012**

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

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

4 ***Doña Ana County, New Mexico***

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

12 ***Otero County, New Mexico***

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

19 ***El Paso County, Texas***

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

27 **Housing**

28 Housing resources at Fort Bliss were described in the 2013 PEA in Section 4. 2 and include
29 2,395 permanent military Family housing units located in the cantonment among several
30 neighborhoods. Family housing on Fort Bliss has been privatized under the RCI, and the
31 contractor responsible for Fort Bliss Military Housing indicates that the construction of 1,708
32 additional homes is underway. Information on housing is presented in further detail in the 2013
33 PEA. Unaccompanied housing is primarily located on the cantonment (4,748 units) and some
34 units (2,320) are located in the three range camps for temporary use during training exercises.
35 Fort Bliss also maintains about 1,124 units for temporary use including Temporary Duty (TDY)
36 personnel and active component Soldiers and their Families relocating to Fort Bliss.

1 **Schools**

2 As described in the 2013 PEA, nine school districts surround the installation, but the majority of
3 students from Fort Bliss (70 percent) attend El Paso Independent School District (ISD) public
4 schools. About 15 percent attend Socorro ISD public schools, and about 12 percent attend Ysleta
5 ISD public schools. Current total enrollment for prekindergarten through grade 12 is 64,214 for
6 the El Paso ISD, 43,672 for the Socorro ISD, and 44,376 for Ysleta ISD for a total of about
7 156,830 students. Attendance in other El Paso County school districts is negligible.

8 **Public Health and Safety**

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

15 **Family Support Services**

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

22 **Recreation Facilities**

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

29 **4.4.12.2 Environmental Effects**

30 **No Action Alternative**

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

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

5 **Alternative 1—Implement Force Reductions**

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

9 ***Population and Economic Impacts***

10 Alternative 1 would result in the loss of up to 16,000⁹ Army positions (15,044 Soldiers and 956
11 Army civilians), each with an average annual income of \$46,760 and \$56,913 respectively. In
12 addition, this alternative would affect an estimated 24,288 Family members (8,928 spouses and
13 15,360 children). The total population of Army employees and their Family members projected
14 to be directly affected under Alternative 1 would be 40,288.

15 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
16 forecasted economic impact value falls outside the historical positive or negative range. Table
17 4.4-5 shows the deviation from the historical average that would represent a significant change
18 for each parameter. The last row summarizes the deviation from the historical average for the
19 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
20 by the EIFS model. Based on the EIFS analysis, changes in population and employment in the
21 ROI under Alternative 1 fall outside the historical range and are categorized a significant impact.
22 However, there would not be significant impacts to sales and income because the estimated
23 percentage change is within the historical range.

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

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

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

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

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

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

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

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

16 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$1.2 billion.
 17 There would also be a loss in sales tax receipts to local and state governments. The state and
 18 average local sales tax for New Mexico is 7.3 and in Texas it is 8.2 percent (Tax Foundation,
 19 2014). To estimate sales tax reductions, information on the proportion of sales that would be
 20 subject to sales taxes on average across the country was utilized. According to the U.S.
 21 Economic Census, an estimated 16 percent of economic output or sales would be subject to sales
 22 tax (U.S. Economic Census, 2012). This percentage and applicable tax rates were applied to the
 23 estimated decrease in sales of \$1.2 billion resulting in an estimated sales tax receipts decrease
 24 ranging from \$13.9 million to \$15.6 million under Alternative 1.

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

8 **Housing**

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

13 **Schools**

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

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

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

33 **Public Services**

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

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

7 **Family Support Services and Recreation Facilities**

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

13 **Environmental Justice and Protection of Children**

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

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

1 **4.4.13 Energy Demand and Generation**

2 **4.4.13.1 Affected Environment**

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

8 **4.4.13.2 Environmental Effects**

9 **No Action Alternative**

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

14 **Alternative 1—Implement Force Reductions**

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

18 **4.4.14 Land Use Conflicts and Compatibility**

19 **4.4.14.1 Affected Environment**

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

22 **4.4.14.2 Environmental Effects**

23 **No Action Alternative**

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

29 **Alternative 1—Implement Force Reductions**

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

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

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

8 **4.4.15 Hazardous Materials and Hazardous Waste**

9 **4.4.15.1 Affected Environment**

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

16 **4.4.15.2 Environmental Effects**

17 **No Action Alternative**

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

21 **Alternative 1—Implement Force Reductions**

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

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

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

4 **4.4.16 Traffic and Transportation**

5 **4.4.16.1 Affected Environment**

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

9 **4.4.16.2 Environmental Effects**

10 **No Action Alternative**

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

13 **Alternative 1—Implement Force Reductions**

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

19 **4.4.17 Cumulative Effects**

20 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
21 realignment at Fort Bliss consist of three counties—El Paso County in Texas and Las Cruces and
22 Alamogordo counties in New Mexico. Section 4.2.14 of the 2013 PEA noted numerous planned
23 or proposed actions within the ROI that have the potential to cumulatively add impacts to Army
24 2020 alternatives. No additional actions have been identified beyond those noted in the
25 cumulative effects analysis of the 2013 PEA.

26 **Reasonably Foreseeable Future Projects on Fort Bliss**

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

29 **Reasonably Foreseeable Future Projects outside Fort Bliss**

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

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

3 **No Action Alternative**

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

7 **Alternative 1—Implement Force Reductions**

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

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

21 Stationing changes, such as the stationing of the Air Force security squadron at Fort Bliss (U.S.
22 Army 2013), would also affect regional economic conditions through the jobs and income they
23 bring (or lose) within the region. Military personnel spend their money in the ROI economy,
24 supporting additional jobs, income, taxes, and sales impacts. As a result of BRAC and Grow the
25 Army, planning, construction, and infrastructure development has occurred for an estimated
26 35,000 to 50,000 Soldiers. Reduction of 16,000 Soldiers and Army civilians would affect this
27 planning and may result in some unused facilities or cancellation of some construction projects.

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

1 **4.5 Fort Bragg, North Carolina**

2 **4.5.1 Introduction**

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

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

8 **4.5.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental impacts are anticipated for Fort Bragg; however, significant
 11 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 12 4.5-1 summarizes the anticipated impacts to VECs under each alternative.

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

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

14

1 **4.5.3 Air Quality**

2 **4.5.3.1 Affected Environment**

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

6 **4.5.3.2 Environmental Effects**

7 **No Action Alternative**

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

11 **Alternative 1—Implement Force Reductions**

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

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

26 **4.5.4 Airspace**

27 **4.5.4.1 Affected Environment**

28 The airspace affected environment for Fort Bragg remains the same as described in Section
29 4.3.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace
30 requirements.

1 **4.5.4.2 Environmental Effects**

2 **No Action Alternative**

3 Impacts to Fort Bragg under the No Action Alternative remain minor, as described in Section
4 4.3.3.2 of the 2013 PEA. Fort Bragg would maintain existing airspace operations as described in
5 the 2013 PEA.

6 **Alternative 1—Implement Force Reductions**

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

12 **4.5.5 Cultural Resources**

13 **4.5.5.1 Affected Environment**

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

16 **4.5.5.2 Environmental Effects**

17 **No Action Alternative**

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

22 **Alternative 1—Implement Force Reductions**

23 Alternative 1 would have a minor, adverse effect on cultural resources as described in Section
24 4.3.4.2 of the 2013 PEA. As discussed in Chapter 1, the potential demolition of existing
25 buildings or placing them in caretaker status as a result of force reductions is not reasonably
26 foreseeable and not part of the scope of this SPEA. Therefore, potential impacts to subsurface
27 archaeological sites and historic structures from these activities are not analyzed. Additionally,
28 the Army is committed to ensuring that personnel cuts will not result in non-compliance with
29 cultural resources regulations. If future site-specific analysis indicates that it is necessary to
30 vacate or demolish structures as a result of force reductions, the installation would comply with
31 applicable laws, such as the NHPA, and conduct the necessary analyses and consultation to
32 avoid, minimize, and/or mitigate these effects.

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

5 **4.5.6 Noise**

6 **4.5.6.1 Affected Environment**

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

10 **4.5.6.2 Environmental Effects**

11 **No Action Alternative**

12 In the 2013 PEA, minor, adverse impacts to noise were anticipated under the No Action
13 Alternative from the continued nature of training operations at the installation. Impacts under the
14 No Action Alternative on Fort Bragg remain the same as those described in Section 4.3.5.2 of the
15 2013 PEA.

16 **Alternative 1—Implement Force Reductions**

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

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

26 **4.5.7 Soils**

27 **4.5.7.1 Affected Environment**

28 The soils affected environment on the installation remains the same as described in Section
29 4.3.6.1 of the 2013 PEA.

1 **4.5.7.2 Environmental Effects**

2 **No Action Alternative**

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

6 **Alternative 1—Implement Force Reductions**

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

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

13 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
14 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
15 Bragg, the Army would ensure that adequate staffing remains so that the installation would
16 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
17 Fort Bragg would be beneficial and remain the same as those discussed in Section 4.3.6.2 of the
18 2013 PEA.

19 **4.5.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 20 Species)**

21 **4.5.8.1 Affected Environment**

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

24 **4.5.8.2 Environmental Effects**

25 **No Action Alternative**

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

1 **Alternative 1—Implement Force Reductions**

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

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

18 **4.5.9 Wetlands**

19 **4.5.9.1 Affected Environment**

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

22 **4.5.9.2 Environmental Effects**

23 **No Action Alternative**

24 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were
25 anticipated from continued training schedules. Potential wetland impacts would be reviewed and
26 managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action
27 Alternative on Fort Bragg remain the same as those discussed in Section 4.3.7.2 of the
28 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

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

1 The Army is committed, however, to ensuring that personnel cuts will not result in non-
2 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
3 at Fort Bragg, the Army would ensure that adequate staffing remains so that the installation
4 would comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort
5 Bragg would be beneficial and remain the same as those discussed in Section 4.3.7.2 of the
6 2013 PEA.

7 **4.5.10 Water Resources**

8 **4.5.10.1 Affected Environment**

9 Water resources are among the VECs excluded from detailed analysis as described in Section
10 4.3.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from
11 the implementation of alternatives included in this analysis. No changes have occurred to the
12 affected environment since 2013.

13 **4.5.10.2 Environmental Effects**

14 **No Action Alternative**

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

18 **Alternative 1—Implement Force Reductions**

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

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

1 **4.5.11 Facilities**

2 **4.5.11.1 Affected Environment**

3 Facilities are among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.3.1.2 because of negligible impacts from implementing alternatives included in that
5 analysis. No changes have occurred to the affected environment since 2013. As described in the
6 2013 PEA, Fort Bragg encompasses 162,816 acres and currently supports a total population of
7 more than 150,000 people. The bulk of the installation's acreage is dedicated to operational areas
8 for field maneuvers, exercises, firing ranges, impact areas, and parachute drop zones. The
9 primary mission is the training of airborne Soldiers. In broad terms, as described in the 2013
10 PEA, continuing operations at Fort Bragg include general maintenance and repair, land
11 management, utility systems operation, and commercial activities.

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

18 **4.5.11.2 Environmental Effects**

19 **No Action Alternative**

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

24 **Alternative 1—Implement Force Reductions**

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

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

3 **4.5.12 Socioeconomics**

4 **4.5.12.1 Affected Environment**

5 The ROI for Fort Bragg includes those areas that are generally considered the geographic extent
6 to which the majority of the installation's Soldiers, Army civilians, contractor personnel, and
7 their Families reside. Fort Bragg is primarily sited in the city of Fayetteville, North Carolina,
8 with a small portion located in the town of Spring Lake, North Carolina. As described in Section
9 4.3.8 of the 2013 PEA, those who live and work at Fort Bragg contribute to the demographic and
10 economic composition of Cumberland, Hoke, and Harnett counties. Subsequently, these counties
11 are included in the ROI.

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

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

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

23 **Population and Demographics**

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

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

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

3 **Table 4.5-2. Population and Demographics, 2012**

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

4 **Table 4.5-3. Racial and Ethnic Composition, 2012**

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

5 ^a Includes those who identify themselves as Hispanic and non-Hispanic White.

6 **Employment and Income**

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

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

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

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

7 **Table 4.5-4. Employment and Income, 2012**

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

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

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

15 **Cumberland County, North Carolina**

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

1 **Harnett County, North Carolina**

2 Similar to Cumberland County, the educational services, and health care and social assistance
3 sector accounts for the greatest share of the total workforce in Harnett County (20 percent).
4 Manufacturing is the second largest employment sector (13 percent), followed by retail trade
5 (12 percent). The Armed Forces account for 8 percent of the Harnett County workforce. The 10
6 remaining sectors account for 47 percent of the total workforce in Harnett County.

7 **Hoke County, North Carolina**

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

14 **Moore County, North Carolina**

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

22 **Housing**

23 Currently, approximately 12,995 Soldiers live in barracks on Fort Bragg. The installation has 168
24 barracks reserved for permanent residents. An additional 15 barracks are reserved for students
25 and one for Wounded Warriors. Fort Bragg has a total of 18,803 barrack spaces. Residential unit
26 types range from single-family homes to four-bedroom, multi-family buildings and duplexes.
27 Additional information about the location of these units is provided in the 2013 PEA in Section
28 4.3.8.1. However, there are no longer leased units in Hoke County (Carswell, 2014b).

29 **Schools**

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

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

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

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

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

7 **Public Health and Safety**

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

14 **Family Support Services**

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

19 **Recreation Facilities**

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

1 **4.5.12.2 Environmental Effects**

2 **No Action Alternative**

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

6 **Alternative 1—Implement Force Reductions**

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

10 ***Population and Economic Impacts***

11 Alternative 1 would result in the loss of 16,000¹⁰ Army positions (13,623 Soldiers and 2,377
12 Army civilians) with an average annual income of \$46,760 and \$63,821, respectively. In
13 addition, this alternative would affect an estimated 24,288 Family members, including 8,928
14 spouses and 15,360 children. The total number of Army employees and their Family members
15 who may be directly affected under Alternative 1 is projected to 40,288.

16 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
17 forecasted economic impact value falls outside the historical positive or negative range. Table
18 4.5-6 shows the deviation from the historical average that would represent a significant change
19 for each parameter. The last row summarizes the deviation from the historical average for the
20 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
21 by the EIFS model. Based on the EIFS analysis, changes in population and employment under
22 Alternative 1 fall outside the historical range and are categorized as a significant impact.
23 However, there would not be a significant impact to sales and income because the estimated
24 percentages fall within the historical range.

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

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

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

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

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

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

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

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

18 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$1 billion.
 19 There would also be a loss in sales tax receipts to local and state governments. The average state
 20 and local sales tax rate for North Carolina is 6.9 percent (Tax Foundation, 2014). To estimate
 21 sales tax reductions, information on the proportion of sales that would be subject to sales taxes
 22 on average across the country was utilized. According to the U.S. Economic Census an estimated
 23 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census,
 24 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of
 25 \$1.0 billion resulting in an estimated sales tax receipts decrease of \$11.3 million under
 26 Alternative 1.

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

11 **Housing**

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

16 **Schools**

17 As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding
18 and large class sizes, particularly those in Harnett and Hoke counties because of the substantial
19 growth of military personnel and their Families in the last 5 years at Fort Bragg. Under
20 Alternative 1, the reduction of 16,000 Soldiers and Army civilians would result in a reduction of
21 40,288, of which 15,360 would be children. Therefore, under Alternative 1, it is anticipated that
22 the reduction of school-aged children would decrease enrollment in some schools that are
23 experiencing overcrowding, resulting in beneficial impacts to those schools with enrollment
24 greater than capacity.

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

34 **Public Services**

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

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

7 **Family Support Services and Recreation Facilities**

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

12 **Environmental Justice and Protection of Children**

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

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

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

3 **4.5.13 Energy Demand and Generation**

4 **4.5.13.1 Affected Environment**

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

7 **4.5.13.2 Environmental Effects**

8 **No Action Alternative**

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

13 **Alternative 1—Implement Force Reductions**

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

17 **4.5.14 Land Use Conflicts and Compatibility**

18 **4.5.14.1 Affected Environment**

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

21 **4.5.14.2 Environmental Effects**

22 **No Action Alternative**

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

26 **Alternative 1—Implement Force Reductions**

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

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

6 **4.5.15 Hazardous Materials and Hazardous Waste**

7 **4.5.15.1 Affected Environment**

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

14 **4.5.15.2 Environmental Effects**

15 **No Action Alternative**

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

19 **Alternative 1—Implement Force Reductions**

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

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

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

1 **4.5.16 Traffic and Transportation**

2 **4.5.16.1 Affected Environment**

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

5 **4.5.16.2 Environmental Effects**

6 **No Action Alternative**

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

11 **Alternative 1—Implement Force Reductions**

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

16 **4.5.17 Cumulative Effects**

17 As noted in the 2013 PEA, the Fort Bragg ROI for cumulative impacts analysis encompasses five
18 counties in North Carolina: Cumberland; Harnett; Hoke; Moore; and Scotland counties. Section
19 4.3.13 of the 2013 PEA notes a number of planned or proposed actions within the ROI that have
20 the potential to cumulatively add to impacts of Army force reductions.

21 **Reasonably Foreseeable Future Projects on Fort Bragg**

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

24 **Reasonably Foreseeable Future Projects outside Fort Bragg**

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

28 **No Action Alternative**

29 The cumulative effects of the No Action Alternative would be the same as determined in the
30 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the
3 same as determined in the 2013 PEA. The reduction of forces at Fort Bragg would result in less
4 training, and facilitate accelerated accomplishment of conservation management practices due to
5 reduced training conflicts. Cumulative impacts from the proposed implementation of Alternative
6 1 would be beneficial, negligible or minor in most cases with the exception of socioeconomics,
7 which are anticipated to be significant.

8 The socioeconomic impact under Alternative 1, as described in Section 4.5.12.2 with a loss of
9 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional
10 economy, schools, and housing. Fort Bragg is an important economic driver in the Fayetteville,
11 North Carolina metropolitan area, with total employment on the installation of almost 53,000.
12 Specifically, in Cumberland, Hoke, and Harnett counties, the Armed Forces account for 20, 15,
13 and 6 percent of the workforce, respectively, demonstrating the importance of the installation to
14 employment opportunities in the region. The considerable reliance on the installation, in
15 combination with 16,000 lost Army jobs, could lead to reduced Fort Bragg and supporting
16 activities in the ROI, additional losses in jobs and income, with fewer job opportunities for
17 displaced Army employees in the ROI.

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

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

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1 **4.6 Fort Campbell, Kentucky**

2 **4.6.1 Introduction**

3 Fort Campbell was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.4.1 of the
 5 2013 PEA.

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

9 **4.6.2 Valued Environmental Components**

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

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

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

15

1 **4.6.3 Air Quality**

2 **4.6.3.1 Affected Environment**

3 Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.4.1.2 due to lack of significant, adverse environmental impacts resulting from
5 implementing the alternatives included in the analysis. No changes have occurred to the affected
6 environment since 2013. Current installation air emissions are well below limits agreed upon
7 between Fort Campbell and the states of Kentucky and Tennessee. Christian County, Kentucky,
8 and Montgomery County, Tennessee, are in attainment with all NAAQS, although the counties
9 are designated maintenance areas (e.g., former nonattainment areas) for the 1997 O₃ standard
10 (EPA, 2013).

11 **4.6.3.2 Environmental Effects**

12 **No Action Alternative**

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

15 **Alternative 1—Implement Force Reductions**

16 Force reductions at Fort Campbell would result in minor, long-term, and beneficial impacts to air
17 quality due to reduced operations and training activities, as well as reduction in vehicle miles
18 traveled associated with the facility.

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

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

28 **4.6.4 Airspace**

29 **4.6.4.1 Affected Environment**

30 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
31 Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing
32 alternatives included in that analysis. No changes have occurred to the affected environment
33 since 2013. Airspace at Fort Campbell is primarily protected to accommodate military testing

1 and training and includes the Fort Campbell Military Operations Area (MOA) and a number of
2 Military Training Routes, both of which extend beyond the boundaries of the installation to the
3 west. Within the MOA, restricted airspace exists and covers the majority of the installation
4 boundaries and extends from the surface to 27,000 feet msl. The remaining portions of the
5 installation are considered Class D airspace up to 3,100 feet msl (U.S. Army, 2009).

6 **4.6.4.2 Environmental Effects**

7 **No Action Alternative**

8 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
9 Fort Campbell would maintain current airspace operations and current airspace classifications
10 and restrictions are sufficient to meet current airspace requirements.

11 **Alternative 1—Implement Force Reductions**

12 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
13 would occur at Fort Campbell. Under Alternative 1, implementation of further force reductions is
14 not expected to increase adverse impacts to airspace. There would be no expected changes to
15 installation operations or types of activities conducted on Fort Campbell. Due to reduced
16 numbers of ABCT Soldiers and support activities, it is likely the potential for airspace conflicts
17 would be reduced further during training activities, resulting in potential beneficial impacts.
18 Current airspace regulations and classifications are sufficient to meet future airspace
19 requirements.

20 **4.6.5 Cultural Resources**

21 **4.6.5.1 Affected Environment**

22 Cultural resources were dismissed from detailed analysis in Section 4.4.1.2 of the 2013 PEA due
23 to negligible impacts associated with implementing the alternatives included in that analysis. As
24 described in the 2013 PEA, existing protocols and procedures at Fort Campbell make
25 unintentional damage to cultural resources, through demolition or construction, unlikely. Fort
26 Campbell periodically monitors significant archaeological sites and known prehistoric burials for
27 compliance with the Archaeological Resources Protection Act and Native American Graves
28 Protection and Repatriation Act. No changes have occurred to the affected environment
29 since 2013.

30 **4.6.5.2 Environmental Effects**

31 **No Action Alternative**

32 Implementation of the No Action Alternative would result in negligible impacts to cultural
33 resources and the affected environment would remain in its current condition.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural
3 resources would occur at Fort Campbell due to existing protocols and procedures that ensure the
4 protection of cultural resources during undertakings with the potential to affect resources. Fort
5 Campbell anticipates that a further reduction in forces will not change this finding because the
6 protocols and procedures currently in place with continue to be utilized.

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

16 **4.6.6 Noise**

17 **4.6.6.1 Affected Environment**

18 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
19 Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in
20 that analysis. No changes have occurred to the affected environment since 2013. As described in
21 the 2013 PEA, the NZs impacted from air traffic (general purpose and attack helicopters) are
22 already heavily trafficked and would not see a major increase in use or operations. As described
23 in the 2013 PEA, the installation already has mitigations in place to help reduce current noise.

24 **4.6.6.2 Environmental Effects**

25 **No Action Alternative**

26 Under the No Action Alternative in the 2013 PEA, negligible, adverse impacts to noise were
27 anticipated from continued operations. Impacts under the No Action Alternative on Fort
28 Campbell remain the same as those discussed in Section 4.4.1 of the 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

30 The 2013 PEA concluded that the force reductions at Fort Campbell would result in no adverse
31 impacts. Under Alternative 1 of this SPEA, noise impacts associated with the proposed force
32 reduction would be considered beneficial to the Fort Campbell region. NZs on Fort Campbell are
33 impacted from air traffic (general purpose and attack helicopters) and munitions explosions.
34 These impacts are mitigated through management practices to reduce noise impacts on the Fort
35 Campbell and local communities. It is assumed that any reduction in Soldier strength would

1 reduce the firing range throughput and curb the existing noise environment. Although not
2 specifically determined in the reduction scenario, any loss in aviation assets would further reduce
3 the frequency of rotor noise; both on and off the installation.

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

9 **4.6.7 Soils**

10 **4.6.7.1 Affected Environment**

11 The soils affected environment on the installation remains the same as was discussed in Section
12 4.4.2.1 of the 2013 PEA.

13 **4.6.7.2 Environmental Effects**

14 **No Action Alternative**

15 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
16 anticipated from continuing training and off-road traffic. Impacts under the No Action
17 Alternative on Fort Campbell remain the same as those discussed in Section 4.4.2.2 of the
18 2013 PEA.

19 **Alternative 1—Implement Force Reductions**

20 Under Alternative 1 of the 2013 PEA, beneficial impacts to soils were anticipated as a result of
21 less use of training areas and off-road traffic. This is anticipated to result in less erosion, soil
22 compaction, and loss.

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

26 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
27 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
28 Campbell, the Army would ensure that adequate staffing remains so that the installation would
29 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
30 Fort Campbell would be beneficial and remain the same as those discussed in Section 4.4.2.2 of
31 the 2013 PEA.

1 **4.6.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
2 **Species)**

3 **4.6.8.1 Affected Environment**

4 The affected environment for biological resources at Fort Campbell has not had substantive
5 changes since 2013, as described in Section 4.4.1.2 of the 2013 PEA.

6 **4.6.8.2 Environmental Effects**

7 **No Action Alternative**

8 Implementation of the No Action Alternative would result in negligible impacts to those that are
9 currently occurring to biological resources, as described in Section 4.4.1.2 of the 2013 PEA. The
10 installation has developed an Endangered Species Management Component in coordination with
11 USFWS, and it coordinates all activities that may have adverse impacts with USFWS.
12 Management controls are in place to reduce the chance of a violation.

13 **Alternative 1—Implement Force Reductions**

14 Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Campbell.
15 It is anticipated that additional proposed force reductions would not change this finding because
16 Alternative 1 would not involve substantial changes to installation operations or the types of
17 activities conducted on Fort Campbell, only a decrease in the frequency of training activities.
18 The installation would continue to manage its natural resources and potential habitat in
19 accordance with the installation INRMP and any conservation measures identified in any ESA
20 Section 7 consultation documents.

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

27 **4.6.9 Wetlands**

28 **4.6.9.1 Affected Environment**

29 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
30 Section 4.4.1.2 because of lack of significant, adverse environmental impacts from implementing
31 alternatives included in that analysis. No changes have occurred to the affected environment
32 since 2013.

1 **4.6.9.2 Environmental Effects**

2 **No Action Alternative**

3 Wetlands are designated as non-training areas on Fort Campbell, and Soldiers are provided
4 instruction on authorized activities around wetland areas through the Directorate of Plans,
5 Training, Mobilization, and Security, Range Division, Integrated Training Area Management
6 Program. Fort Campbell proactively monitors wetland areas and ensures that required training
7 does not impact wetlands areas. As a result, implementing the No Action Alternative would
8 result in negligible, adverse impacts to wetlands, and the affected environment would remain in
9 its current state.

10 **Alternative 1—Implement Force Reductions**

11 The analysis of Alternative 1 in the 2013 PEA concluded that beneficial impacts to wetlands
12 would occur on Fort Campbell. Fort Campbell anticipates that further proposed reductions in
13 force will not change this finding because Alternative 1 does not involve major changes to the
14 installation operations or types of activities conducted on Fort Campbell, only a decrease in the
15 frequency of training activities. The installation would continue to manage its wetlands in
16 accordance with the installation INRMP, and ensure that wetland impacts are avoided and/or
17 mitigated for. Adverse impacts to wetlands could conceivably occur if the further force
18 reductions decreased environmental staffing levels to a point where environmental compliance
19 could not be properly implemented. The Army is committed, however, to ensuring that personnel
20 cuts will not result in non-compliance with wetland regulations. Even if the full end-strength
21 reductions were to be realized at Fort Campbell, the Army would ensure that adequate staffing
22 remains so that the installation would comply with all mandatory regulations.

23 **4.6.10 Water Resources**

24 **4.6.10.1 Affected Environment**

25 The affected environment for water resources on Fort Campbell remains the same as that
26 described in Section 4.4.3.1 of the 2013 PEA. There are no changes to surface water and
27 watersheds, water supply, wastewater, and stormwater resources.

28 **4.6.10.2 Environmental Effects**

29 **No Action Alternative**

30 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
31 Alternative due to impaired water quality of surface waters from sedimentation. Surface water
32 impacts under the No Action Alternative would remain the same as described in the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Beneficial impacts to water resources were anticipated from implementation of force reductions
3 under Alternative 1 in the 2013 PEA because of reduced water consumption and wastewater
4 treatment requirements. Reduction in off-road training activities from force reductions was also
5 anticipated to potentially reduce sedimentation of surface waters. Increased force reductions
6 under Alternative 1 of this SPEA would continue to have the same beneficial impacts to water
7 supply, wastewater, and surface waters.

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

14 **4.6.11 Facilities**

15 **4.6.11.1 Affected Environment**

16 The facilities affected environment of the Fort Campbell installation remains the same as
17 described in Section 4.4.4.1 of the 2013 PEA.

18 **4.6.11.2 Environmental Effects**

19 **No Action Alternative**

20 The 2013 PEA concluded that there would be negligible impacts to facilities at Fort Campbell
21 under the No Action Alternative. For the current analysis, Fort Campbell would continue to use
22 existing space to support administrative and billeting needs of the installation, and impacts to
23 facilities would remain the same as described in the 2013 PEA.

24 **Alternative 1—Implement Force Reductions**

25 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
26 would occur on Fort Campbell. Under Alternative 1, implementation of the proposed further
27 force reductions would result in overall minor, adverse impacts. Impacts would occur from the
28 fact that future, programmed construction or expansion projects may not occur or could be
29 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
30 may require modifications to existing facilities; and a greater number of buildings on the
31 installation may become vacant or underutilized due to reduced requirements for facilities, which
32 would have a negative impact on overall space utilization. Some beneficial impacts are also
33 expected as a result of force reductions such as reduced demands for utilities and reduced
34 demands for training facilities and support services. The force reductions would also provide
35 opportunities to reduce reliance on aging and relocatable facilities. Some units that are currently

1 in non-standard facilities would have the opportunity to relocate to a more appropriately
2 configured facility. As discussed in Chapter 1, the demolition of existing buildings or placing
3 them in caretaker status as a result of the force reductions is not reasonably foreseeable and not
4 part of the scope of this SPEA; therefore, potential impacts from these activities are not
5 analyzed.

6 **4.6.12 Socioeconomics**

7 **4.6.12.1 Affected Environment**

8 Fort Campbell is located on the Kentucky-Tennessee border between Hopkinsville, Kentucky
9 and Clarksville, Tennessee. The ROI includes Christian and Trigg counties in Kentucky and
10 Montgomery and Stewart counties in Tennessee. The ROI for this analysis includes those
11 counties that are generally considered the geographic extent to which the majority of the
12 installation's Soldiers, Army civilians, and contractor personnel, and their Families reside.

13 This section provides a summary of demographic and economic characteristics within the ROI.
14 These characteristics are described in greater detail in the 2013 PEA in Section 4.4.5. However,
15 some demographic and economic indicators have been updated where more current data
16 are available.

17 **Population and Demographics**

18 Using 2011 as a baseline, Fort Campbell has a total working population of 39,427 consisting of
19 active component Soldiers, Army civilians, and other military services, civilians and
20 contractors. Of the total working population, 32,281 were permanent party Soldiers and Army
21 civilians. The population that lives on Fort Campbell consists of 15,087 Soldiers and an
22 estimated 12,069 Family members, for a total on-installation resident population of 27,156 (Fort
23 Campbell, 2013). Army civilians living on the installation would be the spouse of a Soldier. The
24 portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be
25 43,294 and consists of Soldiers, Army civilians, and their Family members.

26 In 2012, the population in the ROI was almost 288,000 (U.S. Census Bureau, 2012a). Each
27 county in the ROI experienced an increase in population between 2010 and 2012 with the
28 exception of Stewart County, which experienced a slight decrease of 0.2 percent (Table 4.6-2).
29 Christian and Montgomery counties are more racially diverse than other counties within the ROI
30 and the states in which they are located (U.S. Census Bureau, 2012a). The 2012 racial and ethnic
31 composition of the ROI is presented in Table 4.6-3.

1 **Table 4.6-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Christian County, Kentucky	75,427	+2.0
Trigg County, Kentucky	14,447	+0.8
Montgomery County, Tennessee	184,468	+7.0
Stewart County, Tennessee	13,297	-0.2

2 **Table 4.6-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kentucky	88.6	8.1	0.3	1.3	1.6	3.2	85.9
State of Tennessee	79.3	17.0	0.4	1.6	1.6	4.8	75.1
Christian County, Kentucky	73.1	21.5	0.7	1.4	2.9	6.9	67.6
Trigg County Kentucky	89.4	8.0	0.3	0.4	1.8	1.4	88.2
Montgomery County, Tennessee	73.1	19.5	0.7	2.2	4.0	8.9	66.2
Stewart County, Tennessee	94.5	2.1	0.7	1.1	1.6	2.3	92.4

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Income**

5 Information presented below represents an update from the 2013 PEA, which provided
 6 employment and income data from 2009. Between 2000 and 2012, total employment increased
 7 in Montgomery County while Christian, Trigg, and Stewart counties all experienced a decrease
 8 in overall employment. Median household income was greatest in Montgomery County and
 9 lowest in Christian County. Trigg and Stewart counties reported median household incomes
 10 similar to that of Kentucky and Tennessee (Table 4.6-4) (U.S. Census Bureau, 2000 and 2012b).

11 Montgomery County had a median home value greater than that of other counties within the ROI
 12 and Kentucky and Tennessee as whole. All other counties within the ROI reported median home
 13 values less than the Kentucky and Tennessee averages (U.S. Census Bureau, 2012b).

1 The percentage of residents living below the poverty line in Christian and Stewart counties is
 2 greater than the average for Kentucky and Tennessee while Trigg and Montgomery counties both
 3 report fewer residents living below the poverty line than in either state (Table 4.6-4) (U.S.
 4 Census Bureau, 2012b).

5 **Table 4.6-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kentucky	1,877,179	+3.3	120,000	42,610	18.6
State of Tennessee	2,832,688	+6.1	138,700	44,140	17.3
Christian County, Kentucky	30,675	-9.5	100,900	37,750	21.3
Trigg County, Kentucky	5,312	-4.7	114,100	44,144	13.5
Montgomery County, Tennessee	79,895	+19.3	139,000	49,459	16.2
Stewart County, Tennessee	4,904	-5.3	110,600	40,200	20.0

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

9 ***Christian County, Kentucky***

10 The primary employment sector in Christian County is the Armed Forces (23 percent).
 11 Educational services, and health care and social assistance is second largest employment sector
 12 (18 percent), followed by manufacturing (13 percent). Retail trade also accounts for a large share
 13 of the total workforce (10 percent). The remaining 10 sectors account for 36 percent of
 14 the workforce.

15 ***Trigg County, Kentucky***

16 The educational services, and health care and social assistance sector accounts for the largest
 17 share of the total workforce in Trigg County (21 percent). Manufacturing is the second largest
 18 employment sector (18 percent), followed by retail trade (10 percent). The arts, entertainment,
 19 and recreation, and accommodation and food services sector also accounts for a notable share of
 20 the total workforce (8 percent). The Armed Forces account for 1 percent of Trigg County's
 21 workforce. The nine remaining sectors account for 42 percent of the workforce.

Montgomery County, Tennessee

Similar to Trigg County, Kentucky, the primary employment sector in Montgomery County is the educational services, and health care and social assistance (19 percent). The Armed Forces represents the second largest share of the total workforce (14 percent), followed by retail trade (13 percent). Manufacturing also represents a notable share of the total workforce (10 percent). The arts, entertainment, and recreation, and accommodation and food services sector is the fourth largest sector of the total workforce (9 percent). The 10 remaining sectors account for 35 percent of the workforce.

Stewart County, Tennessee

The educational services, and health care and social assistance sector also accounts for the greatest share of the total workforce in Stewart County (24 percent). Manufacturing is the second largest employment sector (12 percent), followed by construction (9 percent). The retail trade and transportation and warehousing, and utilities sectors each account for 8 percent of the total workforce. The Armed Forces account for 3 percent of the Stewart County workforce. The nine remaining sectors account of 39 percent of the total workforce.

Housing

As described in the 2013 PEA, Fort Campbell has 4,457 Family quarters for officers and 4,010 quarters for enlisted personnel, which are provided by an RCI partnership. In addition, the installation has 9,731 barrack spaces for unaccompanied personnel. Available housing off the installation primarily consists of single-family dwellings and a limited number of multi-family dwellings. Numerous single-family housing developments are under construction in communities surrounding Fort Campbell, although construction of multi-family dwellings is limited.

Schools

As described in the 2013 PEA, children of military personnel attend either the Fort Campbell School System or school districts within ROI communities. There are four public school districts with 35 elementary, 12 middle, 12 high, and 2 alternative schools. There are 4,690 students who attend Fort Campbell Schools, including 3,129 elementary (6 schools), 846 middle (2 schools), and 715 high school (1 school) aged students (Fort Campbell, 2013).

Public Health and Safety

DES oversees police and fire protection at Fort Campbell. A range of medical services for military personnel and retirees, and their Families are provided by the Blanchfield Army Community Hospital. Dental services are also provided at Fort Campbell. Additional information about these services is provided in the 2013 PEA.

1 **Family Support Services**

2 The Fort Campbell FMWR and ACS provide programs, activities, facilities, services and
3 information to support Soldiers and their Families. Services range from child care and youth
4 programs to employment, financial, and relocation readiness, among others. Additional
5 information about these services is provided in the 2013 PEA.

6 **Recreation Facilities**

7 Both fee and non-fee recreational programs are provided at Fort Campbell. Programs include
8 fitness centers, swimming pools, outdoor recreation opportunities, and sports teams, among
9 others. Additional information about these services is provided in the 2013 PEA.

10 **4.6.12.2 Environmental Effects**

11 **No Action Alternative**

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

15 **Alternative 1—Implement Force Reductions**

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

19 ***Population and Economic Impacts***

20 Alternative 1 would result in the loss of up to 16,000¹¹ Army positions (15,221 Soldiers and 779
21 Army civilians), with an average annual income of \$46,760 and \$57,523, respectively. In
22 addition, this alternative would affect an estimated 24,288 Family members, including 8,928
23 spouses and 15,360 children. The total number of Army employees and their Family members
24 who may be directly affected under Alternative 1 is projected to be 40,288.

25 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
26 forecasted economic impact value falls outside the historical positive or negative range. Table
27 4.6-5 shows the deviation from the historical average that would represent a significant change
28 for each parameter. The last row summarizes the deviation from the historical average for the
29 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
30 by the EIFS model. Based on the EIFS analysis, changes in population and employment under

¹¹ This number was derived by assuming the loss of two BCTs, 60 percent of Fort Campbell's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 Alternative 1 fall outside the historical range and are categorized as a significant impact.
 2 However, there would not be a significant impact to sales and income because the estimated
 3 percentages fall within the historical range.

4 **Table 4.6-5. Economic Impact Forecast System and Rational Threshold Value**
 5 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.5	+10.4	+11.4	+7.4
Economic contraction significance value	-12.4	-8.8	-5.4	-1.7
Forecast value	-6.8	-7.8	-17.6	-14.7

6 Table 4.6-6 summarizes the predicted impacts to income, employment, and population of force
 7 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 8 percent change from the historical average, the percentages in the following table show the
 9 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 10 agreement with the EIFS forecasted values, these figures show the same significance
 11 determinations as the EIFS predictions in the previous table.

12 **Table 4.6-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$863,318,300	-17,807 (Direct)	-40,288
		-1,798 (Induced)	
		-19,605 (Total)	
Total 2012 ROI economic estimates	\$11,140,487,000	120,786	288,000
Percent reduction of 2012 figures	-7.7	-16.2	-14.0

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

16 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 17 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 18 cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and
 19 Army civilians under Alternative 1, EIFS estimates an additional 1,807 direct contract service
 20 jobs would also be lost. An additional 1,798 induced jobs would also be lost because of the
 21 reduction in demand for goods and services within the ROI. The total reduction in employment is
 22 estimated to be 19,605, a significant reduction of 16.2 percent from the total employed labor
 23 force in the ROI of 120,786. Income is estimated to fall by \$968.6 million, a 7.7 percent decrease
 24 in income from 2012.

1 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$768.6 million.
2 There would also be a loss in sales tax receipts to local and state governments. The state and
3 average local sales tax for Kentucky is 6.0 percent and 9.45 percent for Tennessee (Tax
4 Foundation, 2014). To estimate sales tax reductions, information on the proportion of sales that
5 would be subject to sales taxes on average across the country was utilized. According to the U.S.
6 Economic Census an estimated 16 percent of economic output or sales would be subject to sales
7 tax (U.S. Economic Census, 2012). This percentage and applicable tax rate was applied to the
8 estimated decrease in sales of \$768.6 million under Alternative 1 resulting in an estimated
9 decrease in sales tax receipts in this region between \$7.4 and \$11.6 million.

10 Of the 288,000 people (including those residing on Fort Campbell) who live within the ROI,
11 16,000 military employees and their estimated 24,288 Family members are predicted to no
12 longer reside in the area under Alternative 1, resulting in a significant population reduction of
13 14.0 percent. This number could overstate potential population impacts because some people no
14 longer employed by the military may continue to live and work within the ROI, finding
15 employment in other industry sectors. However, because of the rural nature of the ROI and that
16 Fort Campbell serves as a primary employer and economic driver within the ROI, the majority of
17 displaced personnel are likely to move out of the area to seek other opportunities with the Army
18 or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced
19 military employees. A small number of displaced personnel may seek and find work within the
20 ROI; however, others may not be able to find new employment, with possible implications for
21 the unemployment rate.

22 **Housing**

23 Population reduction that would result under Alternative 1 would decrease housing demand and
24 increase housing availability on the installation and across the larger ROI. The housing market in
25 the ROI is generally showing signs of recovery demonstrated by the increase in construction of
26 new single-family developments and a limited number of multi-family dwellings (Fort Campbell,
27 2014). Subsequently, the decrease in housing demand has the potential to increase vacancy rates
28 and may lead to a decline in home values. Overall, minor to significant impacts to housing would
29 occur under Alternative 1.

30 **Schools**

31 Under Alternative 1, the reduction of 16,000 Soldiers and Army civilians would decrease the
32 number of children within the ROI by approximately 15,360. Children of military personnel
33 associated with Fort Campbell attend schools both on and off the installation. As a result, it is
34 anticipated that enrollment at schools attended by military-connected students would decline.

35 As described in the 2013 PEA, there are almost 10,000 military-connected students who attend
36 public schools off the installation. School districts within the ROI receive sizable Federal Impact
37 Aid funds, the allocation of which is based on the number of military-connected students they

1 support. The actual projected loss of Federal Impact Aid funds cannot be determined at this time
2 due to the variability of appropriated dollars from year to year, and because the extent to which
3 the reduction of Soldiers and Army civilians would affect school enrollment is not known at this
4 time. However, it is anticipated that schools across the ROI would likely require fewer teachers
5 and materials as enrollment declines, which would partially offset the reduction in Federal
6 Impact Aid.

7 The Clarksville-Montgomery County School System would experience the greatest loss in
8 Federal Impact Aid funds because their share of military-connected students is greater than other
9 school districts. This school system has invested local funds to support the construction of new
10 schools due to a growing student population, particularly those who are military-connected
11 students. These investments in capital improvements or new facilities require bond
12 repayment/debt servicing. With decreased revenue for these school districts, it may place
13 additional burden on school districts with potential implications for operations. These are fixed
14 costs that would not be proportionately reduced such as those operational costs (teachers and
15 supplies) (Fort Campbell, 2014).

16 Overall, schools within the ROI, particularly those within the Clarksville-Montgomery County
17 School System, would experience significant, adverse impacts from the decline in military-
18 connected student enrollment that would result under Alternative 1. The reduction of military-
19 connected students would likely create excess capacity that would be unsupportable over the
20 long term.

21 **Public Services**

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

30 **Family Support Services and Recreation Facilities**

31 Family Support Services and recreation facilities would experience reduced demand and use and
32 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
33 committed to meeting the needs of the remaining population on the installation. Off-installation
34 demand for these services may also experience a slight decline. Overall, minor impacts to Family
35 Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). As shown in Table 4.6-3, the proportion of minority populations in Christian and Montgomery counties are greater than in Trigg and Stewart counties and in Kentucky and Tennessee as a whole. Because of the higher percentage of minority populations in Christian and Montgomery counties, Alternative 1 has the potential to result in disproportionate adverse impacts to minority-owned and/or -staffed businesses should Soldiers and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Christian and Stewart counties have a slightly higher percentage of population living below the poverty level than in either state. As a result there could be some impacts to environmental justice populations under Alternative 1; however, these impacts are not expected to be disproportional.

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

4.6.13 Energy Demand and Generation

4.6.13.1 Affected Environment

The energy demand and generation affected environment of the Fort Campbell installation remains the same as was discussed in Section 4.4.6.1 of the 2013 PEA.

4.6.13.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, adverse impacts to energy demand and generation would be the same as discussed in the 2013 PEA and would be negligible. Fort Campbell would continue

1 to consume similar types and amounts of energy so impacts to energy demand would remain the
2 same as for the 2013 PEA.

3 **Alternative 1—Implement Force Reductions**

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

7 **4.6.14 Land Use Conflicts and Compatibility**

8 **4.6.14.1 Affected Environment**

9 Land use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
10 Section 4.4.1.2, due to negligible impacts as a result of implementing alternatives included in
11 that analysis. As described in the 2013 PEA, Fort Campbell has a training land deficit; however,
12 the installation's Range Division has the capability to schedule multiple activities within the
13 training lands to meet the current requirements.

14 **4.6.14.2 Environmental Effects**

15 **No Action Alternative**

16 Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were
17 anticipated since the installation is capable of meeting mission requirements with the land
18 available. Impacts under the No Action Alternative on Fort Campbell remain the same as those
19 discussed in Section 4.4.1 of the 2013 PEA.

20 **Alternative 1—Implement Force Reductions**

21 The 2013 PEA concluded that the force reductions at Fort Campbell would result in negligible
22 land use impacts similar to those anticipated under the No Action Alternative, since a reduction
23 in troop strength would not alter existing land use or cause incompatibilities with adjacent land
24 uses. Under Alternative 1, these impacts would remain the same.

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

1 **4.6.15 Hazardous Materials and Hazardous Waste**

2 **4.6.15.1 Affected Environment**

3 Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis
4 in the 2013 PEA (Section 4.4.1.2) due to lack of significant, adverse environmental impacts that
5 would result from implementing the analyzed alternatives. No substantial changes have occurred
6 to the affected environment since 2013.

7 **4.6.15.2 Environmental Effects**

8 **No Action Alternative**

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

12 **Alternative 1—Implement Force Reductions**

13 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous
14 materials and hazardous waste would occur on Fort Campbell. Alternative 1 in this SPEA is not
15 expected to involve major changes to the installation operations or types of activities conducted
16 on Fort Campbell. Alternative 1 would not negatively impact the current hazardous waste
17 handling capabilities on Fort Campbell. Due to the reduced numbers of people, it is likely the
18 potential for spills would be reduced further during training and maintenance activities.

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

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

27 **4.6.16 Traffic and Transportation**

28 **4.6.16.1 Affected Environment**

29 The transportation affected environment of the Fort Campbell ROI remains the same as
30 described in Section 4.4.7.1 of the 2013 PEA. The Regional Planning Commission had
31 concluded that a likely increase in traffic levels would exceed the current threshold and warrant
32 further analysis and growth master planning.

1 **4.6.16.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA identified negligible, adverse impacts. Fort
4 Campbell and its ROI would continue to experience the current LOS on roadways and at ACPs
5 as described in the 2013 PEA.

6 **Alternative 1—Implement Force Reductions**

7 The 2013 PEA concluded that the force reductions at Fort Campbell would result in beneficial
8 impacts to traffic and transportation systems. A force reduction of the anticipated magnitude
9 would significantly decrease traffic congestion and improve LOS on the installation and
10 neighboring communities. The size of this beneficial impact under Alternative 1 would be larger
11 than anticipated at the time of the 2013 PEA.

12 **4.6.17 Cumulative Effects**

13 As noted in the 2013 PEA, the ROI for the cumulative impact analysis consist of the four
14 counties within which Fort Campbell is located—Christian and Trigg counties in Kentucky and
15 Montgomery and Stewart counties in Tennessee. As noted in Section 4.4.8 of the 2013 PEA,
16 numerous planned or proposed actions within the ROI have the potential to cumulatively add
17 impacts to Alternative 1.

18 **Reasonably Foreseeable Future Projects on Fort Campbell**

19 Additional actions identified by the installation beyond those noted in the cumulative effects
20 analysis of the 2013 PEA include Training Mission and Mission Support Activities. Currently
21 the Army is preparing a Programmatic Environmental Impact Statement (PEIS) to evaluate the
22 impacts of current and future training and mission-related activities at Fort Campbell.

23 **Reasonably Foreseeable Future Projects outside Fort Campbell**

24 No additional actions have been identified by the installation beyond those noted in the
25 cumulative effects analysis of the 2013 PEA. However, there are other projects and actions that
26 affect regional economic conditions and generally include construction and development
27 activities, infrastructure improvements, and business and government projects and activities.
28 Additionally, smaller, less diversified economies will be more vulnerable to force reductions and
29 provide fewer opportunities to displaced Army employees.

30 **No Action Alternative**

31 The cumulative effects due to the No Action Alternative are the same as was determined in the
32 2013 PEA, and will be beneficial through minor and adverse. Current socioeconomic conditions
33 would persist within the ROI, and the No Action Alternative would not contribute to
34 any changes.

1 **Alternative 1—Implement Force Reductions**

2 The cumulative effects of Alternative 1 would be essentially similar as was determined in the
3 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Campbell are
4 anticipated to be significant and adverse for socioeconomics, with generally reduced
5 environmental impacts, ranging from minor, adverse to beneficial.

6 The socioeconomic impact under Alternative 1, as described in Section 4.6.12.2 with a reduction
7 of 16,000 Soldiers and Army civilians, could lead to significant impacts to the population,
8 regional economy, schools, and housing in the ROI. Fort Campbell has long been an economic
9 driver in the ROI with a baseline party population of over 25,000 Soldiers, civilians, and other
10 employees and students. The relatively small economy of the ROI depends on the installation's
11 employment and economic activity. With fewer opportunities for employment, the ROI may not
12 be able absorb many of the displaced forces. In Christian County, Kentucky, the Armed Forces
13 account for 23 percent of the workforce, while in Montgomery County, Tennessee, the Armed
14 Forces account for 14 percent of the workforce, demonstrating the importance of installation to
15 employment in the region.

16 Stationing changes would also affect regional economic conditions through the jobs and income
17 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,
18 supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements
19 and construction and development activity would also benefit the regional economy through
20 additional economic activity, jobs, and income in the ROI; however, these benefits would not
21 offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under
22 Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other
23 reasonably foreseeable actions, would have significant impacts to employment, income, tax
24 receipts, housing values, and schools in the ROI.

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1 **4.7 Fort Carson, Colorado**

2 **4.7.1 Introduction**

3 Fort Carson was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.5.1 of the 2013
 5 PEA. Unless otherwise noted, the discussion of Fort Carson's affected environment and
 6 environmental effects below includes Piñon Canyon Maneuver Site.

7 Fort Carson's 2011 baseline permanent party population was 25,702. In this SPEA, Alternative 1
 8 assesses a potential population loss of 16,000, including approximately 15,295 permanent party
 9 Soldiers and 705 Army civilians.

10 **4.7.2 Valued Environmental Components**

11 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 12 significant, adverse environmental impacts are anticipated for Fort Carson; however, significant
 13 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 14 4.7-1 summarizes the anticipated impacts to VECs under each alternative.

15 **Table 4.7-1. Fort Carson Valued Environmental Component Impact Ratings**

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

16

1 **4.7.3 Air Quality**

2 **4.7.3.1 Affected Environment**

3 The air quality affected environment of the Fort Carson ROI remains the same as described in
4 Section 4.5.2.1 of the 2013 PEA. The Fort Carson area has not been designated as a
5 nonattainment area for any criteria pollutants. As noted in the 2013 PEA, however, it does
6 include a maintenance area for CO (EPA, 2013). The 2013 PEA stated that the EPA will decide
7 on a more restrictive O₃ standard in 2013. EPA has still not made a determination on the
8 O₃ standard.

9 **4.7.3.2 Environmental Effects**

10 **No Action Alternative**

11 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
12 emissions at current levels, as well as fugitive dust due to training activities, would result in less
13 than significant to air quality. Air quality impacts of the No Action Alternative for this SPEA
14 remain the same as described in the 2013 PEA.

15 **Alternative 1—Implement Force Reductions**

16 The 2013 PEA concluded that the force reductions at Fort Carson would result in short-term,
17 negligible, adverse as well as long-term, beneficial impacts to air quality due to reduced
18 operations and maintenance activities, dust-generating training activities, and vehicle miles
19 traveled associated with the facility. Impacts to air quality associated with the increased size of
20 the force reductions proposed under Alternative 1 would continue to be beneficial assuming a
21 corresponding decrease in operations and vehicle travel at Fort Carson. The beneficial impact
22 under Alternative 1 for this SPEA would be roughly double that anticipated at the time of the
23 2013 PEA.

24 The relocation of personnel outside of the area due to the force reduction could result in
25 negligible, short-term effects on air quality associated with mobile sources.

26 **4.7.4 Airspace**

27 **4.7.4.1 Affected Environment**

28 The airspace affected environment on the installation remains the same as described in Section
29 4.5.3.1 of the 2013 PEA.

1 **4.7.4.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Carson under
4 the No Action Alternative. Fort Carson would continue to maintain existing airspace operations,
5 and impacts to airspace would remain the same as described in the 2013 PEA.

6 **Alternative 1—Implement Force Reductions**

7 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace
8 would occur on Fort Carson. Under Alternative 1, implementation of proposed further force
9 reductions would increase the beneficial impacts. While there would not be a decreased
10 requirement for airspace, a force reduction would result in slightly lower utilization of airspace.

11 **4.7.5 Cultural Resources**

12 **4.7.5.1 Affected Environment**

13 The affected environment for cultural resources at Fort Carson has changed since the 2013
14 analysis, as described in Section 4.5.4 of the 2013 PEA. Since completion of the PEA Fort
15 Carson has executed three Programmatic Agreements for compliance with Section 106 of
16 NHPA. These programmatic agreements address: 1) Construction, Maintenance, and Operations
17 Activities for Areas on Fort Carson, Colorado (March 2013), 2) Military Training and
18 Operational Support Activities Down Range Fort Carson, Colorado (March 2014), and 3)
19 Military Training and Operational Support Activities Piñon Canyon Maneuver Site, Fort Carson,
20 Colorado (April 20, 2014).

21 **4.7.5.2 Environmental Effects**

22 **No Action Alternative**

23 Impacts to cultural resources from the No Action Alternative would continue to be negligible as
24 described in Section 4.5.4.2 of the 2013 PEA. Activities with the potential to affect cultural
25 resources would continue to be monitored and regulated through the use of existing agreements
26 and/or preventative and minimization measures.

27 **Alternative 1—Implement Force Reductions**

28 Alternative 1 would have a minor, beneficial effect on cultural resources. As discussed in Section
29 4.5.4.2 of the 2013 PEA, there are two historic districts present at the installation and there is
30 little potential for either to be impacted by force reductions. The potential for inadvertent adverse
31 impacts to archaeological sites as a result of training exercises is expected to be reduced under
32 Alternative 1.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
2 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort
3 Carson, the Army would ensure that adequate staffing remains so that the installation would
4 comply with all mandatory environmental regulations at both Fort Carson and Piñon Canyon
5 Maneuver Site.

6 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
7 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
8 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
9 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
10 necessary to vacate or demolish structures as a result of force reductions, the installation would
11 comply with the NHPA and the stipulations and processes outlined in the installation's
12 Programmatic Agreement documents. It would also conduct the necessary analyses and
13 consultations to avoid, minimize, and/or mitigate adverse effects.

14 **4.7.6 Noise**

15 **4.7.6.1 Affected Environment**

16 The noise affected environment of the Fort Carson installation remains the same as described in
17 Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Carson are the firing of
18 weapons, specifically large-caliber weapons, such as artillery and tank main guns, as well as the
19 operations of military aircraft at Butts AAF.

20 **4.7.6.2 Environmental Effects**

21 **No Action Alternative**

22 Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated
23 from continued use of small- and large-caliber weaponry, artillery, and aircraft overflight.
24 Impacts under the No Action Alternative on Fort Carson remain the same as those discussed in
25 Section 4.2.5.2 of the 2013 PEA.

26 **Alternative 1—Implement Force Reductions**

27 The 2013 PEA concluded that the force reductions at Fort Carson would result in minor,
28 beneficial noise impacts due to an anticipated reduction in weapons qualification and maneuver
29 training events. The minor, beneficial impact under Alternative 1 would continue as described in
30 the 2013 PEA.

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

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

3 **4.7.7 Soils**

4 **4.7.7.1 Affected Environment**

5 The soils affected environment on the installation remains the same as was discussed in Section
6 4.5.6.1 of the 2013 PEA.

7 **4.7.7.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were
10 anticipated from continued training schedules, to include damage to vegetation, digging
11 activities, ground disturbance from vehicles, and ammunition or explosives used. Impacts under
12 the No Action Alternative on Fort Carson remain the same as those discussed in Section 4.2.6.2
13 of the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

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

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

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
22 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
23 Carson, the Army would ensure that adequate staffing remains so that the installation would
24 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
25 Fort Carson would be beneficial and remain the same as those discussed in Section 4.2.6.2 of the
26 2013 PEA.

27 **4.7.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 28 Species)**

29 **4.7.8.1 Affected Environment**

30 The affected environment for biological resources at Fort Carson has not had substantive
31 changes since 2013, as described in Section 4.5.7 of the 2013 PEA.

1 **4.7.8.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible impacts similar to those
4 that are currently occurring to biological resources as described in Section 4.5.7.2 of the 2013
5 PEA. Fort Carson and Piñon Canyon Maneuver Site will continue to adhere to the current 2013–
6 2017 INRMP (Fort Carson, 2013), which further minimizes and monitors any potential effects
7 (e.g., briefing units regarding sensitive areas prior to each training event).

8 **Alternative 1—Implement Force Reductions**

9 Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort
10 Carson and Piñon Canyon Maneuver Site. Such beneficial impacts are reduced access to
11 sensitive habitats, and less training would lessen damage and disturbances to wildlife and their
12 habitats. Furthermore, proactive conservation management practices would be more easily
13 accomplished with reduced mission throughput. Adverse impacts could conceivably occur if
14 force reductions prevented environmental compliance from being properly implemented.
15 However, the Army is committed to ensuring that personnel cuts will not result in non-
16 compliance with natural resources regulations. Even if the full end-strength reductions were to be
17 realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated
18 environmental requirements would continue to be met.

19 **4.7.9 Wetlands**

20 **4.7.9.1 Affected Environment**

21 The wetlands affected environment on the installation remains the same as was discussed in
22 Section 4.5.8.1 of the 2013 PEA.

23 **4.7.9.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative in the 2013 PEA, negligible to minor, adverse impacts to
26 wetlands were anticipated from continued training schedules. Potential wetland impacts would
27 be reviewed and managed to be avoided, to the extent practicable, or mitigated for. Impacts
28 under the No Action Alternative on Fort Carson remain the same as those discussed in Section
29 4.5.8.2 of the 2013 PEA.

30 **Alternative 1—Implement Force Reductions**

31 Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to wetlands were anticipated as
32 a result of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation
33 loss were anticipated, and degraded wetlands were expected to restore towards their reference
34 functions and values. Impacts to wetlands could conceivably occur if force reductions decreased

1 environmental staffing levels to a point where environmental compliance could not be properly
2 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
3 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
4 realized at Fort Carson, the Army would ensure that adequate staffing remains so that mandated
5 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
6 Fort Carson would be beneficial and remain the same as those discussed in Section 4.5.8.2 of the
7 2013 PEA.

8 **4.7.10 Water Resources**

9 **4.7.10.1 Affected Environment**

10 The affected environment for water resources on Fort Carson and the Piñon Canyon Maneuver
11 Site remains the same as that described in Section 4.5.9.1 of the 2013 PEA. There are no changes
12 to potable water, wastewater, stormwater, groundwater, water rights, and floodplain resources.

13 **4.7.10.2 Environmental Effects**

14 **No Action Alternative**

15 In the 2013 PEA, minor, adverse impacts to water resources on Fort Carson and negligible
16 impacts to water resources on the Piñon Canyon Maneuver Site were anticipated from the No
17 Action Alternative due to the continued disturbance of surface waters from training activities.
18 Surface water impacts under the No Action Alternative would remain the same as described in
19 the 2013 PEA.

20 **Alternative 1—Implement Force Reductions**

21 Beneficial impacts to water resources were anticipated from implementation of force reductions
22 under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and
23 wastewater treatment and an increase in available wastewater treatment capacity on Fort Carson
24 and the Piñon Canyon Maneuver Site. Reduction in training area use from force reductions on
25 Fort Carson was also anticipated to potentially reduce impacts to surface waters. Increased force
26 reductions under Alternative 1 of this SPEA would continue to have the same beneficial impacts
27 to water supplies, wastewater capacity, and surface waters.

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

1 **4.7.11 Facilities**

2 **4.7.11.1 Affected Environment**

3 The facilities affected environment of the Fort Carson installation remains the same as described
4 in Section 4.5.10.1 of the 2013 PEA.

5 **4.7.11.2 Environmental Effects**

6 **No Action Alternative**

7 The 2013 PEA concluded that there would be minor, adverse impacts to facilities at Fort Carson
8 under the No Action Alternative. The installation's current facility shortfalls have been
9 prioritized, and Fort Carson is seeking or has received Army funding to address them. Impacts to
10 facilities would remain the same as described in the 2013 PEA.

11 **Alternative 1—Implement Force Reductions**

12 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
13 would occur on Fort Carson. Under Alternative 1, implementation of the proposed further force
14 reductions would result in overall minor, adverse impacts. Impacts would occur from the fact
15 that future, programmed construction or expansion projects may not occur or could be
16 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
17 may require modifications to existing facilities; and a greater number of buildings on the
18 installation may become vacant or underutilized due to reduced requirements for facilities, which
19 would have a negative impact on overall space utilization. Some beneficial impacts are also
20 expected as a result of force reductions such as reduced demands for utilities and reduced
21 demands for training facilities and support services. The force reductions would also provide
22 opportunities to reduce reliance on aging facilities nearing the end of their life-cycle. Some
23 facilities could be re-purposed to reduce crowding or support other units. As discussed in
24 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
25 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
26 therefore, potential impacts from these activities are not analyzed.

27 **4.7.12 Socioeconomics**

28 **4.7.12.1 Affected Environment**

29 Fort Carson is an Army installation located near Colorado Springs, primarily in El Paso County,
30 Colorado, and extending south into Pueblo and Fremont counties. Fort Carson's ROI, therefore,
31 consists of El Paso, Pueblo, and Fremont counties, which is the geographic extent in which the
32 majority of the installation's Soldiers, Army civilians, and contractor personnel and their
33 Families reside. This section provides a summary of demographic and economic characteristics
34 within the ROI. These indicators are described in greater detail in Section 4.5.11 of the 2013
35 PEA. However, indicators where more current data are available have been updated accordingly.

1 As in the 2013 PEA, the analysis in this section does not include the region surrounding the
 2 Piñon Canyon Maneuver Site, because Soldiers training at the Piñon Canyon Maneuver Site do
 3 so only for a short period of time, a matter of a few days or weeks. Dependents do not
 4 accompany Soldiers during this training. Therefore, there would be limited impact from the
 5 Proposed Action on community services, schools, or the economy in general.

6 **Population and Demographics**

7 Using 2011 as a baseline, Fort Carson has a total working population of 30,724 consisting of
 8 active component Soldiers and Army civilians, students and trainees, other military services,
 9 civilians and contractors. Of the total working population, 25,702 were permanent party Soldiers
 10 and Army civilians. The population that lives on Fort Carson consists of 13,985 Soldiers and
 11 their 21,229 Family members, for a total on-installation resident population of 35,214 (Benford,
 12 2014). The portion of the active component Soldiers and Army civilians living off the
 13 installation is estimated to be 29,503 and consists of Soldiers, Army civilians, and their Families.
 14 Additionally, there are 121 students and trainees associated with the installation.

15 In 2012, the ROI’s population was over 825,000. The population in El Paso and Pueblo counties
 16 increased slightly between 2010 and 2012, by 3.6 percent and 1.1 percent, respectively, while the
 17 population in Fremont County decreased slightly, by 0.1 percent (Table 4.7-2). The racial and
 18 ethnic composition of the ROI is presented in Table 4.7-3.

19 **Table 4.7-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
El Paso County, Colorado	644,964	+3.6
Fremont County, Colorado	46,788	-0.1
Pueblo County, Colorado	160,852	+1.1

20 **Table 4.7-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or more races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Colorado	88.1	4.3	1.6	3.0	2.8	21.0	69.6
El Paso County, Colorado	84.1	6.8	1.3	2.9	4.5	15.6	71.3
Fremont County, Colorado	91.9	3.9	1.9	0.6	1.6	12.6	80.1
Pueblo County, Colorado	91.1	2.4	2.9	1.0	2.4	42.0	53.5

21 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

1 **Employment and Income**

2 Employment and income information provided in Table 4.7-4 has been updated from the 2013
 3 PEA. El Paso County’s median household income is approximately the same as the state’s
 4 median household income while Fremont and Pueblo counties’ median household income is
 5 approximately \$17,000 lower than the state’s income (U.S. Census Bureau 2012). Total
 6 employment increased in the state of Colorado and in El Paso and Pueblo counties between 2000
 7 and 2012 while it decreased in Fremont County during this period (Table 4.7-4). Employment,
 8 median housing value, median household income, and the percentage of the population living
 9 below the poverty level are presented in Table 4.7-4.

10 **Table 4.7-4. Employment and Income, 2012**

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Colorado	2,531,138	+13	\$236,800	\$58,244	13
El Paso County, Colorado	303,857	+13	\$217,500	\$57,531	13
Fremont County, Colorado	14,757	-10	\$161,100	\$40,893	15
Pueblo County, Colorado	65,561	+10	\$140,500	\$41,820	18

11 Information regarding the workforce by industry for each county within the ROI was obtained
 12 from the U.S. Census Bureau (2012). Information presented below is for the employed
 13 labor force.

14 ***El Paso County, Colorado***

15 The U.S. Census Bureau reported that the educational services, and health care and social
 16 assistance sector accounts for the greatest share of the total workforce in El Paso County,
 17 Colorado (19 percent). The professional, scientific, and management, and administrative and
 18 waste management services is the second largest employment sector (12 percent), followed by
 19 the retail trade sector (10 percent). The arts, entertainment, and recreation, and accommodation
 20 and food services sector account for 9 percent of the total workforce in El Paso County while the
 21 Armed Forces account for 8 percent of the El Paso County workforce. The remainder of
 22 employment sectors in El Paso County account for 42 percent of the workforce.

23 ***Fremont County, Colorado***

24 The educational services, and health care and social assistance services sector accounts for the
 25 largest share of the total workforce in Fremont County (21 percent). The public administration
 26 sector is the second largest employment sector (14 percent) in the county, followed by the retail

1 trade sector (12 percent). Construction also represents a significant share of total employment in
2 the county (10 percent). The Armed Forces account for less than 1 percent of the Fremont
3 County workforce. The remainder of the sectors account for 43 percent of the total workforce.

4 **Pueblo County, Colorado**

5 The educational services, and health care and social assistance services sector is the largest
6 employment sector in Pueblo County (26 percent). Retail trade is the second largest employment
7 sector (14 percent), followed by the arts, entertainment, and recreation, and accommodation and
8 food services sector (10 percent). The construction and the professional, scientific, and
9 management, and administrative and waste management services sectors also account for a
10 significant share of the total workforce in Pueblo County (at 8 percent each). The Armed Forces
11 account for less than 1 percent of the Pueblo County workforce. The remainder of the sectors
12 account for 34 percent of the total workforce.

13 **Housing**

14 Housing resources at Fort Carson were described in Section 4.5 of the 2013 PEA and include
15 3,260 permanent military Family units, which are managed through an RCI Partnership. Fort
16 Carson Soldiers occupy approximately 91 to 95 percent of the available units in Family housing.
17 As of June 2012, 2,989 accompanied Soldiers resided in Fort Carson Family housing.
18 Information on housing is presented in further detail in the 2013 PEA.

19 **Schools**

20 As described in the 2013 PEA, approximately 10,200 children attended school in seven local
21 school districts during the 2010–2011 school year (not including other districts, private schools,
22 or home schools). The seven districts included Academy D-20, Cheyenne Mountain D-12,
23 Colorado Springs D-11, Falcon D-49, Fountain-Fort Carson D-8, Harrison D-2, and Widefield
24 D-3. The highest percentage of military-connected students attends Fountain-Fort Carson D-8
25 school district, accounting for 68 percent of the total in attendance (Fountain-Fort Carson, 2011).

26 **Public Health and Safety**

27 Fort Carson's DES enhances safety, security, and increases force protection by providing 24-
28 hour police and fire support to the Fort Carson community. Evans Army Community Hospital on
29 Fort Carson serves all active component personnel, their Family members, and retirees.
30 Additional information on public services is provided in the 2013 PEA.

31 **Family Support Services**

32 Fort Carson ACS is a human service organization with programs and services dedicated to
33 assisting Soldiers and their Families under FMWR. FMWR is a comprehensive network of
34 support and leisure services designed to enhance the lives of Soldiers (active component, U.S.
35 Army Reserve, and ARNG), their Families, civilian employees, military retirees, and other

1 eligible participants. Services at Fort Carson include Family, child and youth programs,
2 recreation, sports, entertainment, and leisure activities. CYSS is a division within the FMWR
3 that provides child development centers for children ages 6 weeks to 5 years; school age services
4 for ages 6 to 10 years, and middle school and teen programs for ages 11 to 18 years, as well as
5 sports and instructional classes.

6 **Recreation Facilities**

7 Fort Carson offers its military and their Family members and civilians access to many recreation
8 facilities to include, but not limited to, fitness centers, outdoor recreation opportunities, sports
9 teams, bowling, auto crafts shop, a dog park, and a golf course (which is also open to the public).

10 **4.7.12.2 Environmental Effects**

11 **No Action Alternative**

12 The operations at Fort Carson would continue to benefit regional economic activity in the ROI.
13 No additional impacts to housing, public and social services, public schools, public safety, or
14 recreational activities are anticipated. This alternative is anticipated to provide a steady-state
15 contribution of economic and social benefits.

16 **Alternative 1—Implement Force Reductions**

17 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
18 significant impact to socioeconomic resources. The description of impacts to the various
19 components of socioeconomics is presented below.

20 ***Population and Economic Impacts***

21 Alternative 1 would result in the loss of up to 16,000¹² Army positions (15,295 Soldiers and 705
22 Army civilians), each with an average annual income of \$46,760 and \$58,773, respectively. In
23 addition, this alternative would affect an estimated 8,928 spouses and 15,360 children. The total
24 population of Army employees and their Family members directly affected under Alternative 1 is
25 estimated to be 40,288.

26 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
27 forecasted economic impact value falls outside the historical positive or negative ranges. Table
28 4.7-5 shows the deviation from the historical average that would represent a significant change
29 for each parameter. The last row summarizes the deviation from the historical average for the
30 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

¹² This number was derived by assuming the loss of two BCTs, 60 percent of Fort Carson's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 by the EIFS model. Based on the EIFS analysis, changes in population and employment in the
 2 ROI under Alternative 1 fall outside the historical range and are categorized as a significant
 3 impact. However, there would not be a significant impact to income and sales because the
 4 estimated percentage change is within the historical range.

5 **Table 4.7-5. Economic Impact Forecast System and Rational Threshold Value**
 6 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales Volume (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.4	4.5	4.1	3.0
Economic contraction significance value	-6.9	-3.9	-3.8	-1.7
Forecast value	-2.4	-3.1	-5.8	-4.9

7 Table 4.7-6 summarizes the predicted impacts to income, employment, and population of the
 8 reductions against the 2012 economic and demographic data. Whereas the forecast value
 9 provides a percent change from the historical average, the percentages in the following table
 10 show the economic impact as a percent of 2012 demographic and economic data. Although not
 11 in exact agreement with the EIFS forecast values, these figures show the same significance
 12 determinations as the EIFS predictions in the previous table.

13 **Table 4.7-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$969,488,000	-17,782 (Direct)	-40,288
		-3,550 (Induced)	
		-21,331 (Total)	
Total 2012 ROI economic estimates	\$33,075,843,000	384,175	852,604
Percent reduction of 2012 figures	-2.1	-5.6	-4.7

14 Note: Sales estimates are not consistently available from public sources for all counties in the United
 15 States; therefore, the sales data for counties are not presented in this table. The estimated
 16 reduction in total sales from EIFS is described in the paragraphs below.

17 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 18 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 19 cumulative force reductions. Because of the maximum potential loss of 16,000 Army Soldiers
 20 and civilians under Alternative 1, EIFS estimates an additional 1,782 direct contract service jobs
 21 would also be lost. An additional 3,550 induced jobs would be lost because of the reduction in
 22 demand for goods and services within the ROI. Total reduction in employment is estimated to be
 23 21,331, a significant reduction of 5.6 percent from the total employed labor force in the ROI of

1 384,175. Income is estimated to reduce by \$969.5 million, a 2.1 percent decrease in income
2 from 2012.

3 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$1.1 billion.
4 There would also be a loss in sales tax receipts to local and state governments. The state and
5 average local sales tax for Colorado is 7.4 percent (Tax Foundation, 2014). To estimate sales tax
6 reductions, information was utilized on the proportion of sales that would be subject to sales
7 taxes on average across the country. According to the U.S. Economic Census, an estimated 16
8 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
9 This percentage and applicable tax rate was applied to the estimated decrease in sales of \$1.1
10 billion resulting in an estimated sales tax receipts decrease of \$13.6 million under Alternative 1.

11 Of the 852,604 people (including those residing on Fort Carson) who live within the ROI, 16,000
12 Army employees and their estimated 24,288 Family members are predicted to no longer reside in
13 the area under Alternative 1, resulting in a significant population reduction of 4.7 percent. This
14 number likely overstates potential population impacts because some of the people no longer
15 employed by the Army would continue to live and work within the ROI, finding employment in
16 other industry sectors.

17 **Housing**

18 The population reduction would lead to a decrease in demand for housing and increased housing
19 availability on the installation and in the region. As stated in the 2013 PEA, this alternative
20 would increase availability of single occupancy barracks and single Soldier housing. With Army
21 force reductions, vacancies could occur in installation Family housing. Once there are no
22 Soldiers and Families on the active component military waiting lists for housing, remaining units
23 would be filled according to the “waterfall” priority list, as described in the 2013 PEA, which
24 could lead to a slight reduction in median home values in the ROI. El Paso County would be
25 most affected because current Army tenant populations are highest there. Alternative 1 would
26 have minor impacts to housing throughout the ROI.

27 **Schools**

28 Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a
29 reduction in the number of children living in the ROI. It is anticipated that school districts that
30 provide education to on-installation Army children would be affected by this action. Schools on
31 the installation and in the ROI are expected to experience a decline in enrollment. The Fountain-
32 Fort Carson School District as well as Academy D-20, Cheyenne Mountain D-12, Colorado
33 Springs D-11, Falcon D-49, D-8, Harrison D-2, and Widefield D-3 would have a decreased
34 number of military-dependent students attending their schools. With 68 percent of the enrollment
35 associated with military-dependent students, Fountain-Fort Carson (D-8) Public School District
36 is likely to experience significant impacts (Fort Carson, 2014). If enrollment in individual
37 schools declines significantly, schools may need to reduce the number of teachers,

1 administrators, and other staff, and potentially close or consolidate with other schools within the
2 same school district should enrollment fall below sustainable levels.

3 The reduction of Soldiers on Fort Carson would result in a loss of Federal Impact Aid dollars in
4 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
5 who are considered “federally connected” and attend district schools. Actual projected dollar
6 amounts cannot be determined at this time because of the variability of appropriated dollars from
7 year to year, and the actual number of affected school-age children for military and civilian
8 Families. School districts in the ROI would likely need fewer teachers and materials as
9 enrollment drops, which would partially offset some of the reduced Federal Impact Aid.
10 However, Fountain-Fort Carson school district receives significant federal and DoD funding
11 based on the number of military-connected children it supports. The loss of this funding would
12 have a significant impact to this district in the long term.

13 **Public Services**

14 The demand for law enforcement, medical care providers, and fire and emergency service
15 providers on the installation may decrease if Soldiers, Army civilians, and their Family members
16 affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services
17 could conceivably occur if personnel cuts were to substantially affect hospitals, military police,
18 and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable,
19 however, and therefore are not analyzed. Regardless of any drawdown in military or civilian
20 personnel, the Army is committed to meeting health and safety requirements. Overall, minor
21 impacts to public health and safety would occur under Alternative 1. The impacts to public
22 services are not expected to be significant because the existing service level for the installation
23 and the ROI would still be available.

24 **Family Support Services and Recreation Facilities**

25 Family Support Services and recreation facilities would experience reduced demand and use and
26 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
27 committed to meeting the needs of the remaining population on the installation. As a result,
28 Family Support Services and recreational facilities would experience negligible to minor impacts
29 under Alternative 1.

30 **Environmental Justice and Protection of Children**

31 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
32 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
33 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
34 and adverse human health or environmental effects of its programs, policies, and activities on
35 minority and low-income populations” (EPA, 1994). The racial and ethnic composition of
36 Pueblo County in the ROI differs from that of the state as a whole. There are higher populations
37 of minorities in this county compared to the state’s proportions as a whole. In these areas with

1 higher proportions of environmental justice populations, there is a potential that these
2 populations could be adversely impacted under Alternative 1. However, it is not anticipated that
3 Alternative 1 would have disproportionate adverse impacts to minorities, economically
4 disadvantaged populations or children in the ROI. Job losses would be experienced across all
5 income levels and economic sectors and spread geographically throughout the ROI.

6 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
7 federal agencies are required to identify and assess environmental health and safety risks that
8 may disproportionately affect children and to ensure that the activities they undertake do not
9 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
10 were to be realized, the Army is committed to implementing required environmental compliance
11 and meeting the health and safety needs of the people associated with the installation, including
12 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
13 environmental health and safety risks to children within the ROI. Additionally, this analysis
14 evaluates the effects associated with workforce reductions only, and any subsequent actions on
15 the installation that may require ground-disturbing activities that have the potential to result in
16 environmental health and safety risks to children, such as demolishing vacant buildings, is
17 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
18 as appropriate.

19 **4.7.13 Energy Demand and Generation**

20 **4.7.13.1 Affected Environment**

21 The energy demand and generation affected environment of the Fort Carson installation remains
22 the same as described in Section 4.5.12.1 of the 2013 PEA.

23 **4.7.13.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, adverse impacts to energy demand and generation would be
26 the same as described in the 2013 PEA and would be negligible. Fort Carson would continue to
27 consume similar types and amounts of energy, and maintenance of existing utility systems
28 would continue.

29 **Alternative 1—Implement Force Reductions**

30 Minor, beneficial impacts to energy demand are anticipated because force reductions would
31 reduce the installation's overall demand for energy. The installation would also be better
32 positioned to meet energy and sustainability goals.

1 **4.7.14 Land Use Conflicts and Compatibility**

2 **4.7.14.1 Affected Environment**

3 The land use affected environment of the Fort Carson installation remains the same as described
4 in Section 4.5.13.1 of the 2013 PEA.

5 **4.7.14.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were
8 anticipated from continued training schedules. Impacts under the No Action Alternative on Fort
9 Carson remain the same as those discussed in Section 4.2.13.2 of the 2013 PEA.

10 **Alternative 1—Implement Force Reductions**

11 The 2013 PEA concluded that the force reductions at Fort Carson would result in negligible land
12 use impacts because a reduction in training land use is anticipated that roughly correlates with
13 the number of Soldiers inactivated or realigned. Under Alternative 1, negligible impacts to land
14 use would be the same as described in the 2013 PEA.

15 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
16 with land use ordinances and regulations. Even if the full end-strength reductions were to be
17 realized at Fort Carson, the Army would ensure that adequate staffing remains so that the
18 installation would comply with all mandatory environmental regulations including land use
19 ordinances and regulations.

20 **4.7.15 Hazardous Materials and Hazardous Waste**

21 **4.7.15.1 Affected Environment**

22 As described in the 2013 PEA, Fort Carson has a comprehensive program to address
23 management, use, and storage of hazardous waste and toxic substances, as well as a systematic
24 program to investigate and remediate, if necessary, known or suspected contaminated sites across
25 the installation. Fort Carson operates under an HWMP that manages hazardous waste to promote
26 the protection of public health and the environment. No substantial changes have occurred to the
27 affected environment since 2013.

28 **4.7.15.2 Environmental Effects**

29 **No Action Alternative**

30 As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action
31 Alternative. There would be no change in Fort Carson's management of hazardous materials,

1 toxic substances, hazardous waste, or contaminated sites. Fort Carson would continue to manage
2 existing sources of hazardous waste in accordance with the installation's HWMP.

3 **Alternative 1—Implement Force Reductions**

4 Minor, beneficial, and long-term impacts are anticipated because the reduction in people in a
5 reduction of hazardous material use and waste generated.

6 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
7 regulations governing the handling, management, disposal, and clean up, as appropriate, of
8 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
9 realized at Fort Carson, the Army would ensure that adequate staffing remains so that the
10 installation would comply with all mandatory environmental regulations.

11 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
12 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
13 therefore, potential impacts from these activities are not analyzed.

14 **4.7.16 Traffic and Transportation**

15 **4.7.16.1 Affected Environment**

16 The transportation affected environment of the Fort Carson ROI remains the same as described
17 in Section 4.5.15.1 of the 2013 PEA.

18 **4.7.16.2 Environmental Effects**

19 **No Action Alternative**

20 Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse
21 impacts. Deficiencies in road capacity, access points, parking, and on- and off-installation traffic
22 continue to be addressed. Impacts under the No Action Alternative on Fort Carson remain the
23 same as those discussed in Section 4.2.15.2 of the 2013 PEA.

24 **Alternative 1—Implement Force Reductions**

25 The 2013 PEA concluded that the force reductions at Fort Carson would result in substantially
26 beneficial impacts to traffic and transportation systems. It was anticipated that decreases in
27 traffic congestion and travel time would result, on the installation and in neighboring
28 communities. The size of this beneficial impact under Alternative 1 would be larger than
29 anticipated at the time of the 2013 PEA.

30 **4.7.17 Cumulative Effects**

31 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
32 realignment at Fort Carson consist of three counties—El Paso, Fremont, and Pueblo counties,

1 Colorado. Section 4.5.16 of the 2013 PEA noted numerous planned or proposed Army actions, as
2 well as public/private actions, within the ROI that have the potential to cumulatively add impacts
3 to Army 2020 alternatives.

4 **Reasonably Foreseeable Future Projects on Fort Carson**

5 Since the completion of the 2013 PEA, changes that have occurred at Fort Carson include the
6 inactivation of one of Fort Carson's ABCTs and realignment of the remainder of the BCTs,
7 announced in June 2013. On January 13, 2014, another decision was made to convert one of the
8 ABCTs to a Stryker BCT.

9 **Reasonably Foreseeable Future Projects outside Fort Carson**

10 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
11 future projects outside Fort Carson that would be appropriate for inclusion in the cumulative
12 impacts analysis. However, there are other projects and actions that affect regional economic
13 conditions and generally include construction and development activities, infrastructure
14 improvements, and business and government projects and activities.

15 ***No Action Alternative***

16 The cumulative effects of the No Action Alternative would be the same as determined in the
17 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action
18 Alternative would not contribute to any changes.

19 ***Alternative 1—Implement Force Reduction***

20 Overall, the potential cumulative impacts of Alternative 1 at Fort Carson are anticipated to be
21 significant and adverse for socioeconomics, with generally beneficial impacts for the
22 other resources.

23 The socioeconomic impact under Alternative 1, as described in Section 4.7.12.2 with a loss of
24 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional
25 economy, and schools. Fort Carson is an important economic driver in the Colorado Springs
26 metropolitan area, with total employment on the installation of over 25,000. Specifically, in El
27 Paso County, the Armed Forces account for 8 percent of the workforce. The reliance on the
28 installation, in combination with 16,000 lost Army jobs, could lead to reduced Fort Carson and
29 supporting activities in the ROI, additional losses in jobs and income, with fewer job
30 opportunities for displaced Army employees in the ROI.

31 The Army has recently stationed the Combat Aviation Brigade at Fort Carson, but the loss and
32 realignment of the BCTs would offset the population gains of the new Combat Aviation Brigade.
33 These stationing changes would also result in a negligible regional economic effect.

1 Other infrastructure improvements and construction and development activity would also benefit
2 the regional economy through additional economic activity, jobs, and income in the ROI;
3 however, these benefits would not offset the adverse impacts under Alternative 1 and other
4 adverse cumulative actions. Under Alternative 1, the loss of 16,000 Soldiers and Army civilians,
5 in conjunction with other reasonably foreseeable actions, would have significant impacts to
6 employment, income, tax receipts, and schools in the ROI.

1 **4.8 Fort Drum, New York**

2 **4.8.1 Introduction**

3 Fort Drum is a Regional Collective Training Center and supports U.S. Army Reserve and ARNG
4 units from throughout the northeast and an annual throughput of 21,000 to 25,000 Soldiers. Since
5 the start of the ACUB Program in 2009, Fort Drum has secured 20 parcels under easement
6 totaling 4,705 acres that create a buffer on land bordering the installation, which will sustain
7 natural habitats and protect the installation's accessibility, capability, and capacity for Soldier
8 training and testing. To date, \$7,288,549.75 of funding (\$6,788,549 of federal and \$500,000
9 from New York State) have been spent on conservation easements. Fort Drum currently has no
10 incompatible development or use issues. Fort Drum was analyzed in the 2013 PEA. Background
11 information on the installation, including location, tenants, mission, and population, is discussed
12 in Section 4.6.1 of the 2013 PEA.

13 Fort Drum's 2011 baseline permanent party population was 19,011. In this SPEA, Alternative 1
14 assesses a potential population loss of 16,000, including approximately 15,417 permanent party
15 Soldiers and 583 Army civilians.

16 **4.8.2 Valued Environmental Components**

17 For alternatives the Army is considering as part of its 2020 force structure realignment, no
18 significant, adverse environmental impacts are anticipated for Fort Drum; however, significant
19 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
20 4.8-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.8-1. Fort Drum Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Negligible
Soils	Negligible	Beneficial
Biological Resources	Minor	Minor
Wetlands	Minor	Beneficial
Water Resources	Negligible	Negligible
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Minor	Beneficial

2 **4.8.3 Air Quality**

3 **4.8.3.1 Affected Environment**

4 The air quality affected environment of the Fort Drum ROI remains the same as was discussed in
 5 Section 4.6.2.1 of the 2013 PEA. Jefferson County, New York, is designated a nonattainment
 6 area for 1997 O₃ standard. The Fort Drum area has not been designated as a nonattainment area
 7 for any other criteria pollutants (EPA, 2013).

8 **4.8.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
 11 emissions (including training) at current levels would result in minor, adverse impacts to air
 12 quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as
 13 described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 The 2013 PEA concluded that, in the long-term, force reductions at Fort Drum would result in
 16 beneficial impacts to air quality due to reduced operations and maintenance activities, and
 17 reduced vehicle miles travelled associated with the facility. Impacts to air quality from the

1 increased size of the force reduction proposed under Alternative 1 would continue to be
2 beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort
3 Drum. The size of this beneficial impact under Alternative 1 would be roughly double the size of
4 the impact anticipated at the time of the 2013 PEA.

5 The relocation of personnel outside of the area because of force reductions could result in
6 negligible, short-term effects on air quality associated with mobile sources; however, these
7 impacts would be minimal compared with the long-term, beneficial impacts. Overall impacts to
8 air quality would be beneficial.

9 **4.8.4 Airspace**

10 **4.8.4.1 Affected Environment**

11 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
12 Section 4.6.1.2 because of lack of significant, adverse environmental impacts from implementing
13 alternatives included in that analysis. No changes have occurred to the affected environment
14 since 2013. As described in the 2013 PEA, the installation's base airspace complex includes
15 generally the airspace within an approximate 40/50 mile-radius of Wheeler-Sack AAF extending
16 from the surface up to and including 10,000 feet msl. Restricted airspace at Fort Drum includes
17 R-5201, R-5202A and R-5202B. R-5201 and R-5202A are 147 square miles of SUA extending
18 from the surface to 23,000 feet msl and 23,000 feet msl to 29,000 feet msl, respectively. R-
19 5202B is a 105 square mile SUA extending from 6,000 feet msl to 29,000 feet msl. The
20 installation has access to this airspace continuously, with minor restrictions based on normal
21 established operation coordination procedures as described in the 2013 PEA.

22 **4.8.4.2 Environmental Effects**

23 **No Action Alternative**

24 The 2013 PEA dismissal statement concluded that there would be negligible impacts to airspace
25 at Fort Drum under the No Action Alternative. For the current analysis, Fort Drum would
26 continue to maintain current airspace operations and current airspace classifications and
27 restrictions are sufficient to meet current airspace requirements, so impacts to facilities would
28 remain the same as described in the 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

30 The analysis of force reductions in the 2013 PEA concluded that negligible, adverse impacts to
31 airspace would occur at Fort Drum. Under Alternative 1, implementation of proposed further
32 force reductions is not expected to result in changes to installation air operations or types of
33 activities conducted on Fort Drum. Current airspace regulations and classifications are sufficient
34 to meet potential future airspace requirements and overall impacts to airspace would
35 be negligible.

1 **4.8.5 Cultural Resources**

2 **4.8.5.1 Affected Environment**

3 The affected environment for cultural resources at Fort Drum has not changed since 2013, as
4 described in Section 4.6.3 of the 2013 PEA.

5 **4.8.5.2 Environmental Effects**

6 **No Action Alternative**

7 Implementation of the SPEA No Action Alternative would result in minor impacts to cultural
8 resources as described in Section 4.6.3.2 of the 2013 PEA. Activities with the potential to affect
9 cultural resources would continue to be monitored and regulated through the use of existing
10 agreements and/or preventative and minimization measures.

11 **Alternative 1—Implement Force Reductions**

12 As discussed in Section 4.6.3.2 of the 2013 PEA, Alternative 1 would have a minor, adverse
13 effect on cultural resources. The Army is committed to ensuring that personnel cuts will not
14 result in non-compliance with cultural resources regulations. Even if the full end-strength
15 reductions were to be realized at Fort Drum, the Army would ensure that adequate staffing
16 remains so that the installation would comply with all mandatory environmental regulations at
17 Fort Drum.

18 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
19 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
20 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
21 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
22 necessary to vacate or demolish structures as a result of force reductions, the installation would
23 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
24 consultation to avoid, minimize, and/or mitigate these effects.

25 The effects of this alternative are considered to be similar to the No Action Alternative—future
26 activities with the potential to effect cultural resources would continue to be monitored and the
27 impacts reduced through preventative and minimization measures. This alternative could result
28 in some beneficial effects as a decrease in training activities could reduce the potential for
29 inadvertent disturbance of archaeological resources. Additionally, with fewer people to support,
30 there may be a reduction in the number of undertakings with the potential to affect
31 cultural resources.

1 **4.8.6 Noise**

2 **4.8.6.1 Affected Environment**

3 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.6.1.2, due to negligible impacts as a result of implementing alternatives included in
5 that analysis. As described in the 2013 PEA, the noise environment on Fort Drum is
6 characterized as aircraft, artillery, and blast such as the sound of a weapon firing or a projectile
7 exploding in the impact area. Artillery weapons tend to generate the highest level of noise heard
8 on and off the installation; however, the highest sound exposure levels are generated from the
9 aircraft maneuvers (fixed- and rotary-winged). Fort Drum is used by the Army, ARNG, and by
10 the U.S. Air Force for aircraft training including air-to-ground weapons training and
11 UAS training.

12 **4.8.6.2 Environmental Effects**

13 **No Action Alternative**

14 The 2013 PEA anticipated negligible noise impacts, since installation activities and noise
15 contours at Fort Drum would not change. Negligible impacts to noise are expected to continue
16 under the No Action Alternative.

17 **Alternative 1—Implement Force Reductions**

18 The 2013 PEA concluded that the force reductions at Fort Drum would result in negligible noise
19 impacts similar to those discussed for the No Action Alternative. Alternative 1 would not involve
20 major changes in noise sources or contours as the types of weapons systems and training
21 conducted on ranges would not change. There would be a projected change in frequency of
22 training; however, this would not be projected to change installation noise contours. Adverse
23 impacts to noise under Alternative 1 would continue to be negligible.

24 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
25 with noise ordinances and regulations. Even if the full end-strength reductions were to be
26 realized at Fort Drum, the Army would ensure that adequate staffing remains so that the
27 installation would comply with all mandatory environmental regulations including noise
28 ordinances and regulations.

29 **4.8.7 Soils**

30 **4.8.7.1 Affected Environment**

31 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
32 Section 4.6.1.2 due to lack of significant, adverse environmental impacts resulting from the
33 implementation of alternatives included in this analysis. No changes have occurred to the
34 affected environment since 2013.

1 **4.8.7.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible, adverse impacts to soils,
4 and the affected environment would remain in its present state.

5 **Alternative 1—Implement Force Reductions**

6 Per Section 4.6.1.2 of the 2013 PEA, there would be negligible, adverse impacts to soils under
7 Alternative 1. However, a force reduction would result in a reduction in training and associated
8 soil compaction and loss of vegetation. This training reduction would result in less sediment
9 discharge to state waters, thus a beneficial impact is anticipated.

10 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
11 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
12 potential impacts from these activities on soils are not analyzed.

13 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
14 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
15 Drum, the Army would ensure that adequate staffing remains so that the installation would
16 comply with all mandatory environmental regulations.

17 **4.8.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
18 **Species)**

19 **4.8.8.1 Affected Environment**

20 The affected environment for biological resources at Fort Drum has not had substantive changes
21 since 2013, as described in Section 4.6.4.1 of the 2013 PEA.

22 **4.8.8.2 Environmental Effects**

23 **No Action Alternative**

24 Implementation of the No Action Alternative would result in minor impacts similar to those that
25 are currently occurring to biological resources as described in Section 4.6.4.2 of the 2013 PEA.
26 Fort Drum would continue to adhere to its existing military land use as described in the USFWS'
27 Biological Opinion on the effects of activities on Fort Drum on the federally endangered Indiana
28 bat (USFWS, 2012). Fort Drum would continue to manage its natural resources and potential
29 habitat in accordance with the installation INRMP, Biological Opinions, and any conservation
30 measures identified in any ESA, Section 7 consultation documents.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1, minor impacts are anticipated to biological resources at Fort Drum. Minor
3 impacts are anticipated on listed Indiana bat or other species recorded as occurring on the
4 installation as a result of this alternative. There would not be a change in the types of activities
5 conducted on Fort Drum as a result of this alternative, as no major changes are anticipated.
6 Adverse impacts could conceivably occur if force reductions prevented environmental
7 compliance from being implemented. However, the Army is committed to ensuring that
8 personnel cuts will not result in non-compliance with natural resources regulations. Even if the
9 full end-strength reductions were to be realized at Fort Drum, the Army would ensure that
10 adequate staffing remains so that mandated environmental requirements would continue to
11 be met.

12 **4.8.9 Wetlands**

13 **4.8.9.1 Affected Environment**

14 The affected environment for wetlands on Fort Drum remains the same as was discussed in
15 Section 4.6.5.1 of the 2013 PEA.

16 **4.8.9.2 Environmental Effects**

17 **No Action Alternative**

18 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were
19 anticipated from continued training, personnel operations, and routine maintenance schedules.
20 Potential wetland impacts would be reviewed and managed to be avoided, to the extent
21 practicable, or mitigated for. Impacts under the No Action Alternative on Fort Drum remain the
22 same as those discussed in Section 4.6.5.2 of the 2013 PEA.

23 **Alternative 1—Implement Force Reductions**

24 Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result
25 of less use of roads, ranges, and training areas. Less sedimentation and vegetation loss were
26 anticipated, and degraded wetlands were expected to restore towards their reference functions
27 and values. Impacts to wetlands could conceivably occur if the further force reductions decreased
28 environmental staffing levels to a point where environmental compliance could not be properly
29 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
30 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
31 realized at Fort Drum, the Army would ensure that adequate staffing remains so mandated
32 environmental requirements would continue to be met.

1 **4.8.10 Water Resources**

2 **4.8.10.1 Affected Environment**

3 Water resources are among the VECs excluded from detailed analysis as described in Section
4 4.6.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from
5 the implementation of alternatives included in this analysis. No changes have occurred to the
6 affected environment since 2013.

7 **4.8.10.2 Environmental Effects**

8 **No Action Alternative**

9 Implementation of the No Action Alternative would result in negligible impacts to water
10 resources similar to those described in Section 4.6.1.2 of the 2013 PEA. The water supply and
11 wastewater systems on the installation are adequate to support water resources needs.

12 **Alternative 1—Implement Force Reductions**

13 Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water
14 supply and wastewater treatment capacity, would occur on Fort Drum. Facilities at Fort Drum
15 are adequate to support force growth or reductions. Fort Drum anticipates that further proposed
16 reduction in forces would not change this finding because Alternative 1 of this SPEA does not
17 involve major changes to installation operations or types of activities conducted on Fort Drum,
18 only a decrease in the frequency of training activities. The installation would continue to manage
19 its water resources in accordance with applicable federal and state water quality criteria, drinking
20 water standards, and stormwater and floodplain management requirements.

21 Adverse water resources impacts could conceivably occur if personnel cuts prevented
22 environmental compliance from being implemented. The Army is committed, however, to
23 ensuring that personnel cuts will not result in non-compliance with water quality regulations.
24 Even if the full end-strength reductions were to be realized at Fort Drum, the Army would ensure
25 that adequate staffing remains so that mandated environmental requirements would continue to
26 be met and implemented.

27 **4.8.11 Facilities**

28 **4.8.11.1 Affected Environment**

29 The facilities affected environment of the Fort Drum installation remains the same as described
30 in Section 4.6.6.1 of the 2013 PEA.

1 **4.8.11.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA concluded there would be no impacts to facilities at Fort Drum under the No
4 Action Alternative. For the current analysis, because Fort Drum would continue to use its
5 existing facilities to support its tenants and missions, impacts to facilities would remain the same
6 as described in the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
9 would occur on Fort Drum. Under Alternative 1, implementation of the proposed further force
10 reductions would result in overall minor, adverse impacts. Impacts would occur from the fact
11 that future, programmed construction or expansion projects may not occur or could be
12 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
13 may require modifications to existing facilities; and a greater number of buildings on the
14 installation may become vacant or underutilized due to reduced requirements for facilities, which
15 would have a negative impact on overall space utilization. Some beneficial impacts are also
16 expected as a result of force reductions such as reduced demands for utilities and reduced
17 demands for training facilities and support services. The force reductions would also provide the
18 installation with the opportunity to reduce reliance on aging facilities nearing the end of their
19 life-cycle. Some facilities could be re-purposed to support tenant unit requirements. As discussed
20 in Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result
21 of the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
22 therefore, potential impacts from these activities are not analyzed.

23 **4.8.12 Socioeconomics**

24 **4.8.12.1 Affected Environment**

25 Fort Drum is located in the north central portion of Jefferson County in the state of New York.
26 The ROI for this installation includes Jefferson County, New York and includes those areas that
27 are generally considered the geographic extent to which the majority of the installation's
28 Soldiers, Army civilians, and contractor personnel and their Families reside. Fort Drum was also
29 discussed in Section 4.6.7 of the 2013 PEA.

30 **Population and Demographics**

31 Using 2011 as a baseline, Fort Drum has a total working population of 23,012 consisting of
32 active component Soldiers and Army civilians, students and trainees, other military services,
33 civilians and contractors. Of the total working population, 19,011 were permanent party Soldiers
34 and Army civilians. The population that lives on Fort Drum consists of 9,867 Soldiers and
35 estimated 14,978 Family members, for a total on-installation resident population of 24,845
36 (Schadock, 2014a). Finally, the portion of the Soldiers and civilian population living off the

1 installation is 23,025 and consists of Soldiers, Army civilians, and their Family members.
 2 Additionally, there are 68 students and trainees associated with the installation.

3 The ROI's population was 120,941 in 2012. Between 2010 and 2012, the population increased in
 4 Jefferson County by 4.1 percent (Table 4.8-2). The racial and ethnic composition of the ROI is
 5 presented in Table 4.8-3 (U.S. Census Bureau, 2012a).

6 **Table 4.8-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (Percent)
Jefferson County, New York	120,941	+4.1

7 **Table 4.8-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of New York	71.2	17.5	1.0	8.0	0.1	18.2	57.6
Jefferson County, New York	88.8	6.1	0.6	1.6	0.3	6.7	83.5

8 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

9 **Employment and Income**

10 Employment and income information provided in Table 4.8-4 has been updated from the 2013
 11 PEA (U.S. Census Bureau, 2012b). Jefferson County's proportion of the population living below
 12 the poverty level is similar to that of the state overall. Between 2000 and 2012, employment in
 13 both the state of New York and Jefferson County has increased by 8 percent (Table 4.8-4).

14 **Table 4.8-4. Employment and Income, 2012**

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of New York	9,099,857	+8	\$295,300	\$57,683	15
Jefferson County, New York	54,286	+8	\$129,000	\$46,549	15

1 Information regarding the workforce by industry for Jefferson County was obtained from the
2 U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the
3 employed labor force.

4 **Jefferson County, New York**

5 According to the U.S. Census Bureau, the educational services, and health care and social
6 assistance sector accounts for the greatest share of the total workforce in Jefferson County (21
7 percent). The Armed Forces is the second largest employment sector (17 percent), followed retail
8 trade (13 percent). Public administration is the fourth largest employment sector in Jefferson
9 County (9 percent). The remainder of the sectors accounted for 40 percent of the workforce.

10 **Housing**

11 Housing resources at Fort Drum were described in Section 4.6 of the 2013 PEA and include
12 3,900 homes to support housing needs for Families and unaccompanied single Soldiers.
13 Additionally, construction of over 1,200 housing units off the installation (\$279 million) is
14 approximately 50 percent complete. To date, 38 housing developments have been constructed in
15 Jefferson County, providing 4,790 apartments for military Families. In total, housing projects off
16 the installation, supported with local and New York state financial assistance (investments of
17 \$46.94 million to date), have eliminated past housing deficits (Fort Drum, 2014b). Information
18 on housing is presented in further detail in the 2013 PEA.

19 **Schools**

20 As described in the 2013 PEA, children of military personnel attend public and private schools
21 throughout the Jefferson County. Installation housing falls within two area school districts:
22 Carthage Central and Indian River Central. On Fort Drum, 2,782 of 3,835 Family homes are
23 located within the boundaries of the Indian River School District, with the remainder, 1,053
24 Family homes, located in the Carthage Central School District. Military students account for 71
25 and 53 percent, respectively, of the enrollment in the Indian River School District and Carthage
26 Central School District. Watertown City School District has 795 children from military Families
27 account for 20 percent of enrollment, the majority of which are enrolled in kindergarten through
28 grade 6. The percentage of military children enrolled in surrounding area school districts is 22
29 percent (Fort Drum, 2014b).

30 Jefferson Community College (JCC), located in the city of Watertown, is the only college
31 campus in the County. JCC offers a Higher Education Center offering thirteen bachelors' and
32 masters' degree programs in addition to numerous associate degrees. JCC has the highest
33 military enrollment of all community colleges in New York State, with approximately 38 percent
34 (1,610 students) of the JCC student body comprised of active component military, military
35 Family members, and veterans. Of these students, 11 percent are veterans, 7 percent are active
36 military, and 20 percent are Family members. During the summer of 2012, JCC created a

1 classroom annex on Fort Drum with seven classrooms devoted to higher education course work
2 (Fort Drum, 2014b).

3 JCC has recently constructed a \$22 million residence hall (290 beds) in response to the housing
4 needs of the current market. This facility provides a housing option for military Family member
5 students wishing to complete their degree when their parents transfer out of the area. This facility
6 will be completed in 2014 (Fort Drum, 2014b).

7 **Public Health and Safety**

8 As described in the 2013 PEA, the Fort Drum DES includes law enforcement, fire and
9 emergency services, force protection/anti-terrorism, fire prevention and protection, emergency
10 dispatch, physical security, and crime prevention. Ultimately, the Fort Drum DES provides for
11 the protection of all critical assets and personnel and ensuring a safe environment for all who
12 work or live on Fort Drum.

13 Fort Drum's on-installation medical services are administered by its U.S. Army, Medical
14 Department, at several facilities around the cantonment area. These facilities provide healthcare
15 services for military personnel, military Family members, and to military retirees and
16 their Families.

17 Healthcare support for Fort Drum is also delivered by an established military-community
18 partnership that joins the Army Medical Treatment Facility with community providers to
19 augment the Medical Treatment Facility's primary care capability with most specialty care and
20 inpatient services provided by community hospitals.

21 The Fort Drum Regional Health Planning Organization originated out of a DoD 721 pilot
22 program for healthcare delivery. It provides a platform to analyze the existing healthcare delivery
23 options and to seek new opportunities for leveraging non-military healthcare resources to carry
24 out a regional healthcare approach to meet the needs of the expanding military and civilian
25 population in the Fort Drum Health Service Area, strengthening the healthcare system for
26 Soldiers and their Families. This unique healthcare model, with no military hospital on the
27 installation, has created numerous opportunities for innovative partnerships to provide high-
28 quality, flexible healthcare solutions. More than \$100 million in master-planned upgrades to the
29 five hospitals in the Fort Drum health service area have occurred to meet the needs of a growing
30 population of Soldiers, their Families, and civilian residents caused by growth of Fort Drum.

31 **Family Support Services**

32 Fort Drum's ACS manages programs such as Mobilization and Deployment and the Family
33 Readiness Center to assist in educating and preparing Soldiers and Families for the rigors of
34 deployments and extensions. Army Family Team Building educates on the Army way of life and
35 personal development. The Outreach Services acts as a liaison between Families and Fort Drum

1 Command, as well as coordinating and facilitating Army Family Action Plan forums and
2 conferences. The Family Advocacy, Employment Readiness, and Financial Readiness programs
3 deal with personal life issues, working towards the enhancement and betterment of Army
4 Families. ACS also provides Relocation Readiness for those transitioning both in and out of Fort
5 Drum and houses the Army Volunteer Corps.

6 **Recreation Facilities**

7 FMWR is responsible for a variety of quality of life concerns for Soldiers and their Families.
8 FMWR is mostly responsible for recreational activities on the installation exclusive of hunting,
9 fishing, trapping, and wildlife viewing, which is managed by the Directorate of Public Works
10 (DPW) Environmental Division Natural Resources. FMWR's Adventure Training Program
11 promotes periodic hunting and fishing trips to recreational areas off the installation; the Outdoor
12 Adventure Program directs and/or promotes other recreational activities on and off the
13 installation and maintains shooting ranges; and Parks and Recreation manages Remington Park,
14 which offers beach swimming and boating, pavilions, lodges, tent, cabin, and recreational
15 vehicle (RV) sites, trails and outdoor equipment rental.

16 **4.8.12.2 Environmental Effects**

17 **No Action Alternative**

18 The operations at Fort Drum would continue to benefit regional economic activity. No additional
19 impacts to housing, public and social services, public schools, public safety, or recreational
20 activities are anticipated.

21 **Alternative 1—Implement Force Reductions**

22 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
23 significant impact to socioeconomic resources. The description of impacts to the various
24 components of socioeconomics is presented below.

25 ***Population and Economic Impacts***

26 Alternative 1 would result in the loss of 16,000¹³ Army positions (15,417 Soldiers and 583 Army
27 civilians) positions, each with an average annual income of \$46,760 and \$56,314, respectively.
28 In addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a
29 total estimated potential impact to 24,288 Family members. The total population of Army
30 employees and their Families directly affected under Alternative 1 would be projected to be
31 40,288.

¹³ This number was derived by assuming the loss of two BCTs, 60 percent of Fort Drum's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 2 forecasted economic impact value falls outside the historical positive or negative range. Table
 3 4.8-5 shows the deviation from the historical average that would represent a significant change
 4 for each parameter. The last row summarizes the deviation from the historical average for the
 5 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 6 by the EIFS model. Based on the EIFS analysis, changes in population, employment, income,
 7 and sales in the ROI under Alternative 1 fall outside the historical range and are categorized a
 8 significant impact.

9 **Table 4.8-5. Economic Impact Forecast System and Rational Threshold Value**
 10 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	12.3	8.7	10.8	6.5
Economic contraction significance value	-6.7	-4.7	-3.0	-1.0
Forecast value	-12.5	-16.4	-34.4	-34.4

11 Table 4.8-6 summarizes the predicted impacts to income, employment, and population of the
 12 reductions against the 2012 demographic and economic data. Whereas the forecast value
 13 provides a percent change from the historical average, the percentages in the following table
 14 show the economic impact as a percent of 2012 demographic and economic data. Although not
 15 in exact agreement with the EIFS forecast values, these figures show the same significance
 16 determinations as the EIFS predictions in the previous table.

17 **Table 4.8-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$877,512,000	-17,544 (Direct)	-40,288
		-1,558 (Induced)	
		-19,102 (Total)	
Total 2012 ROI economic estimates	\$5,327,673,000	54,286	120,941
Percent reduction of 2012 figures	-16.5	-35.2	-33.3

18 Note: Sales estimates are not consistently available from public sources for all counties in the United
 19 States; therefore, the sales data for counties are not presented in this table. The estimated
 20 reduction in total sales from EIFS is described in the paragraphs below.

21 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 22 receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total
 23 cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and
 24 Army civilians under Alternative 1, EIFS estimates an additional 1,544 direct contract service
 25 jobs would also be lost. An additional 1,558 induced jobs would be lost because of the reduction

1 in demand for goods and services within the ROI. The total reduction in employment is
2 estimated to be 19,102, a significant reduction of 35.2 percent from the total employed labor
3 force in the ROI of 54,286. Income is estimated to be reduced by \$877.5 million, a 16.5 percent
4 decrease in income from 2012.

5 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$763.5 million.
6 There would also be a loss in sales tax receipts to local and state governments. The state and
7 average local sales tax for New York is 8.47 percent (Tax Foundation, 2014). To estimate sales
8 tax reductions, information was utilized on the proportion of sales that would be subject to sales
9 taxes on average across the country. According to the U.S. Economic Census an estimated 16
10 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
11 This percentage and applicable tax rate was applied to the estimated decrease in sales of \$763.5
12 million resulting in an estimated sales tax receipts decrease of \$10.3 million under Alternative 1.

13 Of the 120,941 people (including those residing on Fort Drum) who live within the ROI, 16,000
14 Army employees and their estimated 24,288 Family members would potentially no longer reside
15 in the area under Alternative 1, resulting in a significant population reduction of 33.3 percent.
16 Although some people no longer employed by the military could continue to live and work
17 within the ROI, due to the rural nature of the area and Fort Drum as a dominant employer and
18 economic driver of the ROI, most displaced forces would likely move out of the area to seek
19 other opportunities with the Army or elsewhere. In addition, Jefferson County currently has the
20 third highest unemployment rate of the 62 counties in the state of New York (New York
21 Department of Labor, 2014), resulting in few employing sectors in the ROI to absorb displaced
22 military employees. A small number of displaced forces may stay in the ROI and seek work,
23 finding work, and others may remain unemployed and affect the unemployment rate in the ROI.

24 **Housing**

25 The population reduction would lead to a considerable decrease in demand for housing and
26 vacant housing units on Fort Drum and in the ROI, resulting in a reduction in median home
27 values with impacts on the real estate market and foreclosures in the ROI.

28 In addition to depressing rental rates and lowering home values, there would not be residents to
29 fill the over-30 housing complexes (approximately 5,000 units) constructed in the ROI to support
30 Soldier's housing needs. The loss of residents would not be filled by the local population.
31 Alternative 1 would lead to a loss of revenue and income necessary to maintain housing units,
32 potentially cause a raise in property taxes, and likely drive investors to default on loans in the
33 ROI (Fort Drum, 2014b). Overall, Alternative 1 would have significant, adverse impact on
34 housing throughout the ROI.

1 **Schools**

2 Under Alternative 1, a reduction of 16,000 Soldiers and Army civilians would result in a
3 reduction in the number of children living in the ROI. Carthage Central, Indian River Central,
4 and Watertown City school districts are expected to experience a decline in enrollment. It is
5 likely that the majority of remaining military Families would choose to locate to the on-
6 installation Family housing, and the bulk of the students would be enrolled at Indian River and
7 Carthage Central. Watertown City School District would, therefore, experience a considerable
8 decrease in student enrollment related to the loss of military Families to the installation.

9 The three aforementioned school districts would experience significant, adverse impacts under
10 Alternative 1. Student population would decrease by more than 2,000 at the Indian River School
11 District; approximately 1,900 at the Carthage Central School District; and 800 at the Watertown
12 City School District. Current enrollment at these school districts is 4,343; 3,545; and 3,973,
13 respectively (Fort Drum, 2014b). This decline is estimated to result in the termination of
14 teachers, professional staff, and support staff and an associated loss of salary and benefits.
15 Schools may need to close or consolidate with other schools within the same school district.

16 The reduction of Soldiers on Fort Drum would result in a loss of Federal Impact Aid dollars in
17 the ROI. The amount of Federal School Impact Aid a district receives is based on the number of
18 students who are considered “federally connected” and attend district schools. The three school
19 districts currently receive up to \$32,000,000 in Federal Impact Aid (Fort Drum, 2014b). The loss
20 of most of the Federal Impact Aid as well as the loss of state financial support would reduce or
21 eliminate important educational support programs. The loss of approximately 16,000 active
22 component Soldiers, Army civilians, and their Family members will decrease the amount of
23 Federal Impact Aid dollars being provided to these schools. Overall, significant, adverse impacts
24 to schools under Alternative 1 would occur to the Carthage Central, Indian River Central, and
25 Watertown City school districts.

26 A decrease of 16,000 Soldiers would reduce the JCC’s enrollment (Fort Drum, 2014b) with
27 implications for the college’s revenue, operating budget, staffing, and degree programs.
28 Decreases in Soldier population will adversely impact the viability of the college’s residence hall
29 project because of the impact on enrollment and corresponding softening of the housing market.

30 **Public Services**

31 The demand for law enforcement, medical care providers, and fire and emergency service
32 providers on the installation would decrease if Soldiers, Army civilians, and their Families
33 affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services
34 could occur if personnel cuts were to substantially affect military police and fire and rescue
35 crews on the installation. Recently, a for-profit provider of emergency medical services invested
36 in a large capital expansion to meet the needs of the Fort Drum growth. Volunteer fire and

1 ambulance services as well as private emergency service providers would be adversely affected
2 under Alternative 1.

3 Additionally, community hospitals and medical service providers rely on Army funding for their
4 operations. Medical personnel cuts would adversely affect local hospitals and the services they
5 provide for the remaining Soldiers and Families and the civilian rural population surrounding
6 Fort Drum. Combined military spending on healthcare in the community healthcare system
7 outside the installation is approximately \$57.7 million (Fort Drum, 2014b). Under Alternative 1,
8 the loss of military revenue would result in hospital and other clinic closures and loss of access
9 to specialty services. Five hospitals in the Fort Drum health service area have recently been
10 upgraded. Additional financial burden would be placed on companies, communities, and
11 institutions, with implications for the provision of services and viability of operations. Impacts to
12 healthcare services are anticipated because funding, support, time, donations, and tax revenue are
13 directly related to the number of military authorizations and the number of Family members.

14 Overall, adverse impacts to public health and safety would occur under Alternative 1. Although
15 the level and number of services may decrease at medical facilities on the installation and in the
16 ROI, the Army, regardless of any drawdown in military or civilian personnel, is committed to
17 meeting health and safety requirements.

18 ***Family Support Services and Recreation Facilities***

19 Family Support Service and recreation facilities would experience reduced demand and use and
20 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
21 committed to meeting the needs of the remaining population on the installation. As a result,
22 Family Support Services and recreation facilities would experience minor impacts under
23 Alternative 1.

24 ***Environmental Justice and Protection of Children***

25 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
26 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
27 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
28 and adverse human health or environmental effects of its programs, policies, and activities on
29 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
30 disproportionate adverse impact to minorities, economically disadvantaged populations or
31 children in the ROI. Job losses would be experienced across all income levels and economic
32 sectors and spread geographically throughout the ROI. Minority populations in the ROI are
33 proportionally much smaller than in the state as a whole, so there would be no disproportionate
34 effect on environmental justice populations.

35 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
36 federal agencies are required to identify and assess environmental health and safety risks that

1 may disproportionately affect children and to ensure that the activities they undertake do not
2 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
3 were to be realized, the Army is committed implementing required environmental compliance
4 and meeting the health and safety needs of the people associated with the installation, including
5 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
6 environmental health and safety risks to children within the ROI. Additionally, this analysis
7 evaluates the effects associated with workforce reductions only, and any subsequent actions on
8 the installation that may require ground-disturbing activities that have the potential to result in
9 environmental health and safety risks to children, such as demolishing vacant buildings, is
10 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
11 as appropriate.

12 **4.8.13 Energy Demand and Generation**

13 **4.8.13.1 Affected Environment**

14 The energy demand and generation affected environment of the Fort Drum installation remains
15 the same as described in Section 4.6.8.1 of the 2013 PEA.

16 **4.8.13.2 Environmental Effects**

17 **No Action Alternative**

18 Under the No Action Alternative, impacts to energy demand and generation would be the same
19 as described in the 2013 PEA and would be minor. Fort Drum would continue to consume
20 similar types and amounts of energy, and maintenance of existing utility systems
21 would continue.

22 **Alternative 1—Implement Force Reductions**

23 Minor, beneficial impacts to energy demand are anticipated because force reductions would
24 reduce the installation's overall demand for energy. The installation would also be better
25 positioned to meet energy and sustainability goals.

26 **4.8.14 Land Use Conflicts and Compatibility**

27 **4.8.14.1 Affected Environment**

28 The land use affected environment of the Fort Drum installation remains generally the same as
29 described in Section 4.6.9.1 of the 2013 PEA; since completion of the 2013 PEA, the installation
30 boundary has been surveyed and the total acreage updated to 108,733 acres.

1 **4.8.14.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA anticipated negligible land use impacts, since installation activities at Fort Drum
4 would not change. Negligible impacts to land use are expected to continue under the
5 No Action Alternative.

6 **Alternative 1—Implement Force Reductions**

7 The 2013 PEA concluded that force realignments at Fort Drum would result in negligible land
8 use impacts, since additional units would use existing lands and facilities and stationing would
9 not cause changes to existing or regional land use. Under Alternative 1, impacts from force
10 reductions would be continue to be negligible, as described in the 2013 PEA.

11 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
12 with land use ordinances and regulations. Even if the full end-strength reductions were to be
13 realized at Fort Drum, the Army would ensure that adequate staffing remains so that the
14 installation would comply with all mandatory environmental regulations including land use
15 ordinances and regulations.

16 **4.8.15 Hazardous Materials and Hazardous Waste**

17 **4.8.15.1 Affected Environment**

18 Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis
19 in the 2013 PEA (Section 4.6.1.2) due to lack of significant, adverse environmental impacts
20 resulting from implementing the analyzed alternatives. No substantial changes have occurred to
21 the affected environment since 2013.

22 **4.8.15.2 Environmental Effects**

23 **No Action Alternative**

24 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
25 Use of hazardous materials and generation of hazardous wastes would continue on Fort Drum in
26 accordance with all applicable laws, regulations, and plans.

27 **Alternative 1—Implement Force Reductions**

28 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous
29 materials and hazardous waste would occur on Fort Drum. Alternative 1 in this SPEA is not
30 expected to involve major changes to the installation operations or types of activities conducted
31 on Fort Drum. Alternative 1 would not negatively impact the current hazardous waste handling
32 capabilities on Fort Drum. Because of the reduced numbers of people, it is expected that the

1 potential for spills would be reduced further during training and maintenance activities under
2 Alternative 1.

3 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
4 regulations governing the handling, management, disposal, and clean up, as appropriate, of
5 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
6 realized at Fort Drum, the Army would ensure that adequate staffing remains so that the
7 installation would comply with all mandatory environmental regulations.

8 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
9 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
10 therefore, potential impacts from these activities are not analyzed.

11 **4.8.16 Traffic and Transportation**

12 **4.8.16.1 Affected Environment**

13 The transportation affected environment of the Fort Drum ROI remains the same as described in
14 Section 4.6.10.1 of the 2013 PEA.

15 **4.8.16.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Significant
18 transportation improvements have been undertaken as described in the 2013 PEA, including new
19 highway connectors leading directly to the installation and new traffic signals on the installation
20 to provide needed capacity for current and future conditions.

21 **Alternative 1—Implement Force Reductions**

22 The 2013 PEA concluded that the force reductions at Fort Drum would result in minor, adverse
23 impacts to traffic and transportation systems. That assessment has been changed to a beneficial
24 impact for the additional force reductions (Fort Drum, 2014a).

25 **4.8.17 Cumulative Effects**

26 As noted in the 2013 PEA, the ROI consists of Jefferson County, New York. Section 4.6.11 of
27 the 2013 PEA noted a number of on and off installation actions that may present further effects
28 to the installation and surrounding community when the effects of these actions are
29 considered cumulatively.

30 **Reasonably Foreseeable Future Projects on Fort Drum**

31 Additional actions identified by the installation beyond those noted in the cumulative effects
32 analysis of the 2013 PEA include the following:

- 1 • An additional UAS hangar at the Air National Guard MQ-9 LRE facility
- 2 • A new Army MQ-1 UAS facility
- 3 • An addition to the Network Enterprise Command building
- 4 • Two Army and Air Force Exchange Service restaurant/shoppette/fuel station
- 5 improvement projects
- 6 • Several MILCON and infrastructure projects

7 **Reasonably Foreseeable Future Projects outside Fort Drum**

8 Reasonably foreseeable future projects outside Fort Drum which would be appropriate for
9 inclusion in the cumulative impacts analysis include the following:

- 10 • Several housing projects (1,201 units) with an estimated total cost of \$279 million
- 11 • Clayton Harbor Hotel
- 12 • Mixed use/retail projects—A three-story development on Clayton waterfront (mixed use),
- 13 Western Blvd commercial development in Watertown, a Family Dollar in West Carthage
- 14 • Downtown Watertown development projects
- 15 • Restaurants—Sonic in Watertown and Captain’s House in Clayton
- 16 • Other construction projects—JCC Dorms, RV Park/Campsite in Alexandria Bay, Mobile
- 17 Home Park in Cape Vincent, Mobile Home Park in Brownville
- 18 • Corporate parks—Two buildings in the Jefferson County Corporate Park, Watertown
- 19 Airport Corporate Park development, Purcell Corporate Park developments on Bradley
- 20 Street in the city of Watertown and off Washington Street in the town of Watertown
- 21 • COR Mercy Hospital redevelopment project
- 22 • Lincoln Building revitalization project
- 23 • Brighton Building project
- 24 • Empsall’s Building restoration project

25 In addition, there are other projects and actions that affect regional economic conditions and
26 generally include construction and development activities, infrastructure improvements, and
27 business and government projects and activities. Additionally, smaller, less diversified
28 economies will be more vulnerable to the force reductions and provide fewer opportunities to
29 displaced Army employees.

1 **No Action Alternative**

2 The cumulative effects due to the No Action Alternative are essentially the same as was
3 determined in the 2013 PEA, and will be beneficial through minor and adverse. Current
4 socioeconomic conditions would persist within the ROI, and the No Action Alternative would
5 not contribute to any changes.

6 **Alternative 1—Implement Force Reductions**

7 Overall, the potential cumulative impacts of Alternative 1 at Fort Drum is anticipated to be
8 significant and adverse for socioeconomics, with generally reduced impacts for the other
9 resources, ranging from minor, adverse to beneficial.

10 The socioeconomic impact under Alternative 1, as described in Section 4.8.12.2, with a reduction
11 of 16,000 Soldiers and Army civilians could lead to significant impacts to the population,
12 regional economy, schools, and housing in the ROI. Fort Drum has long been an economic driver
13 in the ROI employing over 22,000 people on the installation. The small, rural economy of the
14 ROI depends on the installation’s employment and economic activity. With fewer opportunities
15 for employment, the ROI would not be able absorb many of the displaced military employees. In
16 Jefferson County, the Armed Forces accounted for 32 percent of the workforce, demonstrating
17 the importance of installation to employment in the region.

18 Additionally, non-federal investments have been made by private companies and local
19 communities and governments to support Army installations. With decreased population,
20 employment, spending, and economic activity within the ROI, additional financial burden may
21 be placed on companies, communities, and institutions, with implications for the provision of
22 services and viability of operations. Impacts to multiple regional community services and
23 schools are anticipated because they receive funding, support, time, donations, and tax revenue
24 directly related to the number of military authorizations and the number of Family members.
25 These cumulative, adverse impacts to the regional economy would contribute to more
26 significant, adverse impacts under Alternative 1.

27 Stationing changes would also affect regional economic conditions through the jobs and income
28 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,
29 supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements
30 and construction and development activity would also benefit the regional economy through
31 additional economic activity, jobs, and income in the ROI; however, these benefits would not
32 offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under
33 Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other
34 reasonably foreseeable actions, would have significant impacts to employment, income, tax
35 receipts, housing values, and schools in the ROI.

1 **4.9 Fort Gordon, Georgia**

2 **4.9.1 Introduction**

3 Fort Gordon was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.7.1 of the
 5 2013 PEA.

6 Fort Gordon’s 2011 baseline permanent party population was 8,142. In this SPEA, Alternative 1
 7 assesses a potential population loss of 4,600, including approximately 3,922 permanent party
 8 Soldiers and 761 Army civilians.

9 **4.9.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated for Fort Gordon; however, significant
 12 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 13 4.9-1 summarizes the anticipated impacts to VECs under each alternative.

14 **Table 4.9-1. Fort Gordon Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Negligible	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Less than Significant	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Significant, but Mitigable	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

15

1 **4.9.3 Air Quality**

2 **4.9.3.1 Affected Environment**

3 Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from
5 implementing alternatives included in the analysis. No changes have occurred to the affected
6 environment since 2013. The Fort Gordon area has not been designated as a nonattainment area
7 for any criteria pollutants (EPA, 2013).

8 **4.9.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, continuation of mobile and stationary source emissions at
11 current levels would result in minor, adverse impacts to air quality.

12 **Alternative 1—Implement Force Reductions**

13 Force reductions at Fort Gordon would result in minor, long-term beneficial impacts to air
14 quality due to reduced operations and training activities and reduced vehicle miles travelled
15 associated with the facility.

16 The relocation of personnel outside of the area due to force reductions could result in negligible,
17 short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the
18 demolition of existing buildings or placing them in caretaker status as a result of force reductions
19 is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts
20 from these activities are not analyzed.

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
22 quality regulations. Even if the full end-strength reductions were to be realized at Fort Gordon,
23 the Army would ensure that adequate staffing remains so that the installation would comply with
24 all mandatory environmental regulations.

25 **4.9.4 Airspace**

26 **4.9.4.1 Affected Environment**

27 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
28 Section 4.7.1.2 because of lack of significant, adverse environmental impacts from implementing
29 alternatives included in that analysis. No changes have occurred to the affected environment
30 since 2013. As described in the 2013 PEA, Fort Gordon has restricted airspace over its artillery
31 firing points and artillery impact area. The FAA designator for the airspace is R-3004A and
32 R-3004B and go up to 8,000 feet and 20,000 feet above ground level, respectively.

1 **4.9.4.2 Environmental Effects**

2 **No Action Alternative**

3 For the current analysis, Fort Gordon would continue to maintain current airspace operations and
4 current airspace classifications and restrictions are sufficient to meet current airspace
5 requirements, and negligible impacts to airspace would remain the same as described in the
6 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
9 would occur at Fort Gordon. Under Alternative 1, implementation of proposed further force
10 reductions would continue negligible, adverse impacts to airspace. Reductions at Fort Gordon
11 would not result in changes to airspace classifications nor would it change the frequency or
12 intensity of activities at Fort Gordon that require the use of airspace.

13 **4.9.5 Cultural Resources**

14 **4.9.5.1 Affected Environment**

15 Cultural resources were dismissed from detailed analysis in Section 4.7.1.2 of the 2013 PEA
16 because of negligible impacts associated with implementing the alternatives included in that
17 analysis. In addition to an ICRMP, Fort Gordon has a Programmatic Agreement between the U.S.
18 Army and the Georgia SHPO to facilitate daily management of its cultural resources (Fort
19 Gordon, 2006). As described in the 2013 PEA, existing protocols and procedures outlined in the
20 Fort Gordon ICRMP (2011) and other agreements describe the standard operating procedures for
21 managing and protecting resources on the installation would continue to be followed. There have
22 been no changes in the affected environment since 2013.

23 Fort Gordon has completed Phase 1 archaeological surveys of approximately 95 percent of the
24 installation. The 2013 PEA documented 1,150 archaeological sites; 41 have been determined
25 eligible for listing in the NRHP and 114 are potentially eligible. These include both prehistoric
26 and historic sites. There are 43 known historic cemeteries that date to before the establishment of
27 the installation and two World War II Prisoner of War cemeteries.

28 Additionally, as noted in the 2013 PEA, an installation-wide architectural survey has been
29 completed. Through consultation with the SHPO the installation has determined that a single
30 architectural resource, the Woodworth Library, is eligible for listing in the NRHP, and 43 have
31 been recommended for re-evaluation upon reaching 50 years of age. They will likely be
32 determined eligible for listing in the NRHP as a district.

1 **4.9.5.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible impacts to cultural
4 resources and the affected environment would remain in its current condition.

5 **Alternative 1—Implement Force Reductions**

6 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural
7 resources would occur at Fort Gordon due to continued use of existing protocols and procedures
8 that ensure the consideration of cultural resources during undertakings with the potential to affect
9 resources. Fort Gordon anticipates that a further reduction in forces would not change this
10 finding because the protocols and procedures currently in place would continue to be used.

11 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
12 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort
13 Gordon, the Army would ensure that adequate staffing remains so that the installation would
14 comply with all mandatory environmental regulations at Fort Gordon.

15 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
16 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
17 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
18 structures from these activities are not analyzed. If future analysis indicates that it is necessary to
19 vacate or demolish structures as a result of force reductions, the installation would comply with
20 applicable laws, such as NHPA, and conduct the necessary analyses and consultation to avoid,
21 minimize, and/or mitigate these effects.

22 **4.9.6 Noise**

23 **4.9.6.1 Affected Environment**

24 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
25 Section 4.7.1.2, due to negligible impacts as a result of implementing alternatives included in
26 that analysis. The primary source of noise at Fort Gordon is military training activities. Other
27 sources of noise include operation of civilian and military vehicles, lawn and landscape
28 equipment, construction activities, and vehicle maintenance operations.

29 **4.9.6.2 Environmental Effects**

30 **No Action Alternative**

31 The 2013 PEA anticipated negligible noise impacts, since noise from construction and military
32 training activities at project and range training sites would remain contained within the
33 installation boundary and noise generating activities carried out on the installation would not

1 change. Negligible impacts to noise at Fort Gordon would continue under the
2 No Action Alternative.

3 **Alternative 1—Implement Force Reductions**

4 Alternative 1 would result in beneficial noise impacts, with a slight decrease in the amount of
5 training related noise.

6 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
7 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
8 Fort Gordon, the Army would ensure that adequate staffing remains so that the installation would
9 comply with all mandatory environmental regulations including noise ordinances
10 and regulations.

11 **4.9.7 Soils**

12 **4.9.7.1 Affected Environment**

13 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
14 Section 4.7.1.2 due to lack of significant, adverse environmental impacts resulting from the
15 implementation of alternatives included in this analysis. No changes have occurred to the
16 affected environment since 2013.

17 **4.9.7.2 Environmental Effects**

18 **No Action Alternative**

19 Implementation of the No Action Alternative would result in negligible, adverse impacts to soils
20 and the affected environment would remain in its present state.

21 **Alternative 1—Implement Force Reductions**

22 Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to soils under Alternative
23 1. Decreases in military training would reduce erosion levels and the amount of soil displaced.

24 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
25 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
26 potential impacts from these activities on soils are not analyzed.

27 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
28 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
29 Gordon, the Army would ensure that adequate staffing remains so that the installation would
30 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
31 Fort Gordon would be beneficial and remain the same as those discussed in Section 4.7.1.2 of the
32 2013 PEA.

1 **4.9.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
2 **Species)**

3 **4.9.8.1 Affected Environment**

4 The affected environment for biological resources at Fort Gordon has not had substantive
5 changes since 2013, as described in Section 4.7.1.2 of the 2013 PEA. Biological resources are
6 among the VECs excluded from detailed analysis in the 2013 PEA due to lack of significant,
7 adverse environmental impacts resulting from the implementation of alternatives included in
8 this analysis.

9 **4.9.8.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible impacts similar to those
12 that are currently occurring to biological resources, as described in Section 4.7.1.2 of the 2013
13 PEA. Fort Gordon would continue to adhere to its existing military land use as described in
14 accordance with the installation's INRMP (Fort Gordon, 2008) and ESMP, terms and conditions
15 identified within Biological Opinion(s) issued by USFWS and any conservation measures
16 identified in the ESA Section 7 consultation documents.

17 **Alternative 1—Implement Force Reductions**

18 Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Gordon.
19 The threatened and endangered species recorded on the installation would continue to be
20 managed in accordance with the installation's INRMP and ESMP, terms and conditions
21 identified within Biological Opinion(s) issued by USFWS and any conservation measures
22 identified in ESA, Section 7 consultation documents. No change in impacts or management is
23 anticipated to occur as a result of the implementation of this alternative. Minor, beneficial
24 impacts of reduced wildlife disturbance and vegetative disturbance are anticipated as a result of
25 this alternative.

26 Additional adverse impacts could conceivably occur if force reductions prevented environmental
27 compliance from being implemented., the Army is committed, however, to ensuring that
28 personnel cuts will not result in non-compliance with natural resources regulations. Even if the
29 full end-strength reductions were to be realized at Fort Gordon, the Army would ensure that
30 adequate staffing remains so that mandated environmental requirements would continue to
31 be met.

1 **4.9.9 Wetlands**

2 **4.9.9.1 Affected Environment**

3 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.7.1.2 due to lack of significant, adverse environmental impacts as a result of
5 implementing alternatives included in that analysis. No changes have occurred to the affected
6 environment since 2013.

7 **4.9.9.2 Environmental Effects**

8 **No Action Alternative**

9 Implementation of the No Action Alternative would result in negligible, adverse impacts to
10 wetlands and the affected environment would remain in its present state.

11 **Alternative 1—Implement Force Reductions**

12 Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under
13 Alternative 1. The Army is also committed to ensuring that personnel cuts will not result in non-
14 compliance with wetland regulations. Impacts to wetlands could conceivably occur if the further
15 force reductions decreased environmental staffing levels to a point where environmental
16 compliance could not be properly implemented. The Army is committed, however, to ensuring
17 that personnel cuts will not result in non-compliance with wetland regulations. Even if the full
18 end-strength reductions were to be realized at Fort Gordon, the Army would ensure that adequate
19 staffing remains so that mandated environmental requirements would continue to be met.
20 Therefore, impacts under Alternative 1 at Fort Gordon would remain the same as those discussed
21 in Section 4.7.1.2 of the 2013 PEA.

22 **4.9.10 Water Resources**

23 **4.9.10.1 Affected Environment**

24 Water resources are among the VECs excluded from detailed analysis as described in Section
25 4.7.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting from
26 the implementation of alternatives included in this analysis. No changes have occurred to the
27 affected environment since 2013.

28 **4.9.10.2 Environmental Effects**

29 **No Action Alternative**

30 Implementation of the No Action Alternative would continue to result in negligible impacts to
31 water resources similar to those described in Section 4.7.1.2 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1 in the 2013 PEA, negligible impacts to water resources in general would
3 occur on Fort Gordon, as well as beneficial impacts including reduction in water consumption
4 and wastewater treatment generated. Fort Gordon anticipates that further proposed reduction in
5 forces would not change this finding because Alternative 1 of this SPEA does not involve major
6 changes to installation operations or types of activities conducted on Fort Gordon, only a
7 decrease in the frequency of training activities. The installation would continue to manage water
8 resources in accordance with applicable federal and state water quality criteria, drinking water
9 standards, and stormwater and floodplain management requirements.

10 Adverse water resources impacts could conceivably occur if personnel cuts prevented
11 environmental compliance from being implemented. The Army is committed, however, to
12 ensuring that personnel cuts will not result in non-compliance with water quality regulations.
13 Even if the full end-strength reductions were to be realized at Fort Gordon, the Army would
14 ensure that adequate staffing remains so that mandated environmental requirements would
15 continue to be met and implemented.

16 **4.9.11 Facilities**

17 **4.9.11.1 Affected Environment**

18 The facilities affected environment of the Fort Gordon installation remains the same as described
19 in Section 4.7.2.1 of the 2013 PEA.

20 **4.9.11.2 Environmental Effects**

21 **No Action Alternative**

22 The 2013 PEA concluded that there would be less than significant, adverse impacts under the No
23 Action Alternative to facilities at Fort Gordon. The installation currently has a shortage of
24 facilities such as dining facilities, housing, warehouses, and ranges. The No Action Alternative
25 and known future stationing actions would increase the facility shortage issues. Temporary
26 facilities and building renovations are planned to correct the deficiencies; however, adverse
27 impacts would continue as described in the 2013 PEA.

28 **Alternative 1—Implement Force Reductions**

29 The analysis of force reductions in the 2013 PEA concluded that less than significant, adverse
30 impacts to facilities would occur on Fort Gordon. Under Alternative 1, implementation of the
31 proposed further force reductions would result in overall minor, adverse impacts. Impacts would
32 occur from the fact that future, programmed construction or expansion projects may not occur or
33 could be downscoped; moving occupants of older, underutilized, or excess facilities into newer
34 facilities may require modifications to existing facilities; and a greater number of buildings on
35 the installation may become vacant or underutilized due to reduced requirements for facilities,

1 which would have a negative impact on overall space utilization. Some beneficial impacts are
2 also expected as a result of force reductions such as reduced demands for utilities and reduced
3 demands for training facilities and support services. Force reductions would also provide
4 opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed
5 to reduce crowding or support other units. As discussed in Chapter 1, the demolition of existing
6 buildings or placing them in caretaker status as a result of the reduction in forces is not
7 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
8 these activities are not analyzed.

9 **4.9.12 Socioeconomics**

10 **4.9.12.1 Affected Environment**

11 Fort Gordon is located southwest of Augusta, Georgia, approximately halfway between Atlanta,
12 Georgia and Columbia, South Carolina. The ROI includes Richmond, Jefferson, McDuffie, and
13 Columbia counties in Georgia. The ROI for Fort Gordon includes those areas that are generally
14 considered the geographic extent to which the majority of the installation's Soldiers, Army
15 civilians, and contractor personnel and their Families reside. Fort Gordon was also discussed in
16 Section 4.7.3 of the 2013 PEA.

17 **Population and Demographics**

18 Using 2011 as a baseline, Fort Gordon has a total working population of 22,020 consisting of
19 full-time Army Soldiers and Army civilians, students and trainees, other military services,
20 civilians and contractors. Of the total working population, 8,142 are permanent party Soldiers
21 and Army civilians. The population that lives on Fort Gordon consists of 1,004 Soldiers and
22 civilians and an estimated 2,566 Family members, for a total on-installation resident population
23 of 3,570. The portion of the Soldiers and Army civilians living off the installation is estimated to
24 be 17,973 and consists of Soldiers, Army civilians, and their Families (Drumm, 2014).

25 Fort Gordon is home to the Cyber Center of Excellence and provides Communications and
26 Information Technology training for Soldiers. Students are based at Fort Gordon for the expected
27 length of their assigned curriculum, which may range from 4 days to 8 months. Fort Gordon
28 averages approximately 5,700 students assigned for training and can accommodate up to 4,434
29 students in on-installation housing (Drumm, 2014). Any remaining students would be
30 accommodated in local lodging facilities or rental units.

31 In 2012, the population of the ROI was more than 360,000. Between 2010 and 2012, population
32 increased in Columbia and Richmond counties and decreased in Jefferson and McDuffie counties
33 (Table 4.9-2). The racial and ethnic composition of the ROI is presented in Table 4.9-3 (U.S.
34 Census Bureau 2012a).

1 **Table 4.9-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Columbia County, Georgia	131,563	+9.2
Jefferson County, Georgia	16,460	-2.8
McDuffie County, Georgia	21,650	-1.0
Richmond County, Georgia	202,672	+1.1

2 **Table 4.9-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	62.8	31.2	0.5	3.5	1.8	9.2	55.1
Columbia County, Georgia	76.7	16.0	0.4	4.1	2.7	5.6	72.2
Jefferson County, Georgia	44.4	53.9	0.2	0.5	0.9	3.4	41.6
McDuffie County, Georgia	57.1	40.6	0.4	0.4	1.4	2.5	55.3
Richmond County, Georgia	40.3	54.9	0.4	1.7	2.4	4.5	37.3

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Income**

5 Employment increased in the state of Georgia and in Columbia County between 2000 and 2012,
 6 while it decreased in the remaining counties in the ROI (Table 4.9-4). The percentage of
 7 population living below the poverty level in Jefferson County was 13 percent higher than the
 8 same measure of poverty at the state level. Additionally, this county had a median household
 9 income that was almost half that of the state level in 2012. Employment, median home value and
 10 household income, and poverty levels are presented in Table 4.9-4.

1 **Table 4.9-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	\$156,400	\$49,604	17
Columbia County, Georgia	59,502	+35	\$171,400	\$67,295	8
Jefferson County, Georgia	5,846	-2	\$69,700	\$27,612	30
McDuffie County, Georgia	8,539	-5	\$105,000	\$38,855	21
Richmond County, Georgia	85,072	-2	\$102,500	\$38,952	24

2 Information regarding the workforce by industry for each county within the ROI was obtained
 3 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 4 the employed labor force.

5 ***Columbia County, Georgia***

6 According to the U.S. Census Bureau, the educational services, and health care and social
 7 assistance sector accounts for the greatest share of the workforce in Columbia County at 33
 8 percent of the total workforce. The professional, scientific, and management, and administrative
 9 and waste management services sector; retail trade sector; and manufacturing sector each
 10 account for 10 percent of the of the workforce. The Armed Forces account for 3 percent of the
 11 workforce in Columbia County. The remainder of employment sectors account for 44 percent of
 12 the total workforce.

13 ***Jefferson County, Georgia***

14 The primary source of employment in Jefferson County is the educational services, and health
 15 care and social assistance sector (23 percent). Manufacturing is the second largest employment
 16 sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for less than
 17 1 percent of the Jefferson County workforce. The remaining sectors employ 48 percent of
 18 the workforce.

19 ***Richmond County, Georgia***

20 According to the U.S. Census Bureau, the educational services, and health care and social
 21 assistance sector accounts for the greatest share of the total workforce in Richmond County (24
 22 percent). Retail trade is the second largest employment sector (11 percent), followed the arts,
 23 entertainment, and recreation, and accommodation and food services sector (9 percent). The

1 Armed Forces account for 6 percent of the Richmond County workforce. The remaining sectors
2 account for 50 percent of the total workforce.

3 **McDuffie County, Georgia**

4 The educational services and health care and social assistance sector accounts for the greatest
5 share of the total workforce in McDuffie County (20 percent). Manufacturing is the second
6 largest sector (17 percent), followed by construction (12 percent). Retail trade also accounts for a
7 significant share of the total workforce in McDuffie County (11 percent). The Armed Forces
8 account for less than 1 percent of the McDuffie County workforce. The remaining sectors
9 account for 40 percent of the total workforce.

10 **Housing**

11 There are currently 1,080 Family housing units on Fort Gordon. Additionally, there are 1,932
12 permanent party bed spaces within 31 Barracks units on the installation (Helmlinger, 2014).

13 **Schools**

14 Children of military personnel attend school in many different counties in the ROI, but
15 predominantly attend schools in Richmond and Columbia counties. Currently, 56 public schools
16 are located in Richmond County, 41 of these schools are Title I schools (73 percent). Title I
17 schools receive extra federal money because they have high concentrations of low-income
18 families and students who qualify for free or reduced price lunch. The Richmond County School
19 System is participating in a Federal Program entitled: The Community Eligibility. This program
20 falls under the 2010 Healthy, Hunger-Free Kids Act. Schools in Richmond County received \$1.2
21 million and Columbia County received \$480,000 in Federal Impact Aid from the U.S.
22 Department of Education in FY 2011. The Georgia Department of Education collects enrollment
23 counts from all school districts several times throughout any given school year. These are
24 referred to as Full-Time Equivalency counts (Drinneen, 2014). There has been a steady trend in
25 enrollment growth for both counties recently. The 2013 PEA contains further details on schools
26 within the ROI.

27 **Public Health and Safety**

28 **Police Services**

29 The Fort Gordon Police Department, a part of DES, provides law enforcement and property
30 protection at Fort Gordon. Police functions include protecting life and property, enforcing
31 criminal law, conducting investigations, regulating traffic, providing crowd control, and
32 performing other public safety duties. City, county, and state police departments provide law
33 enforcement in the ROI.

Fire and Emergency Services

The Fort Gordon Fire Department, a part of DES, provides emergency firefighting and rescue services at Fort Gordon. Fire prevention is another service provided by the Fort Gordon Fire Department. Fire prevention activities include providing fire safety inspections, ensuring that structures meet all applicable codes and regulations, and also providing awareness and safety training to the installation.

Medical Facilities

The Dwight D. Eisenhower Army Medical Center at Fort Gordon provides healthcare services for military personnel, Family members, and to military retirees and their Family members. The medical center currently has a contract for birthing services for Army Families with Trinity Hospital in Augusta. Fort Gordon also provides dental services and supports a Warrior Transition Battalion. In addition to the services at the Dwight D. Eisenhower Army Medical Center, there are plans for a Blood Donor Center and a Consolidated Troop Medical Clinic.

Family Support Services

The Fort Gordon FMWR and ACS provide programs, activities, facilities, services, and information to support Soldiers and Families. Services provided at Fort Gordon include child care, youth programs, and deployment readiness for Families, employment readiness, financial readiness, relocation readiness, exceptional Family member support, Warrior in Transition support, and survivor outreach.

Recreation Facilities

The Fort Gordon FMWR provides facilities and programs for recreation including fitness centers, swimming pools, athletic fields, a golf course, bowling center, outdoor recreation opportunities, and sports teams.

4.9.12.2 Environmental Effects

No Action Alternative

Under the No Action Alternative, regional economic activity would continue to benefit from operations at Fort Gordon. No changes in employment, support contracts, goods and services purchased or changes in military operations at Fort Gordon are anticipated.

Alternative 1—Implement Force Reductions

Analysis by the EIFS model determined that implementation of Alternative 1 would result in a significant impact to socioeconomic resources. The description of impacts to the various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 4,683¹⁴ Army positions (3,922 Soldiers and 761 Army civilians), each with an average annual income of \$46,760 and \$56,723, respectively. In addition, this alternative would affect an estimated 2,613 spouses and 4,496 dependent children for a total estimated potential impact to 7,109 Family members. The total population of military employees and their Family members potentially affected under Alternative 1 would be projected to be 11,792.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.9-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under Alternative 1 fall outside the historical range and are categorized as a significant impact. However, there would not be a significant impact to sales, employment, or income because the estimated percentage change is within the historical range.

Table 4.9-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.9	5.6	4.0	2.2
Economic contraction significance value	-7.0	-5.1	-9.4	-1.5
Forecast value	-1.5	-2.2	-3.8	-2.8

Table 4.9-6 shows the predicted impacts to income, employment, and population of the reductions against the 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecast values, these figures show the same significance determinations as the EIFS predictions in the previous table.

¹⁴ This number was derived by assuming the loss of 70 percent of Fort Gordon’s Soldiers and 30 percent of the Army civilians to arrive at 4,683. The 2013 PEA assumed the loss of 35 percent of Fort Gordon’s Soldiers and 15 percent of the Army civilians to arrive at 4,300.

1 **Table 4.9-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$282,631,700	-5,243 (direct)	-11,792
		-1,000 (induced)	
		-6,243 (total)	
Total 2012 ROI economic estimates	\$13,609,467,000	158,959	372,345
Percent reduction of 2012 figures	-2.1	-3.9	-3.1

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 With a potential reduction in the population in the ROI, losses in income, employment, and tax
 6 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 7 cumulative force reductions. Due to the loss of 4,683 Army Soldiers and Army civilians under
 8 Alternative 1, EIFS estimates an additional 560 direct contract service jobs would be also lost.
 9 An additional 1,000 induced jobs would be lost because of the reduction in demand for goods
 10 and services within the ROI. Total reduction in employment is estimated to be 6,243, a 3.9
 11 percent reduction of the total employed labor force in the ROI of 158,959. Income is estimated to
 12 reduce by \$282.6 million, a 2.1 percent decrease in income from 2012.

13 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$348.3 million.
 14 There would also be a loss in sales tax receipts to local and state governments. The average state
 15 and local sales tax rate for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax
 16 reductions, information was utilized on the proportion of sales that would be subject to sales tax
 17 on average across the country. According to the U.S. Economic Census an estimated 16 percent
 18 of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and
 19 applicable tax rate was applied to the estimated decrease in sales of \$348.4 million resulting in
 20 an estimated sales tax receipts decrease of \$3.9 million under Alternative 1.

21 Of the approximately 372,345 people (including those residing on Fort Gordon) who live within
 22 the ROI, 11,792 Army employees and their Family members are predicted to no longer reside in
 23 the area under Alternative 1, resulting in a significant population reduction of 3.1 percent. This
 24 number could overstate potential population impacts because some of the people no longer
 25 employed by the military could continue to live and work within the ROI, finding employment in
 26 other industry sectors. However, due to the rural nature of the area and Fort Gordon as a
 27 dominant employer and economic driver of the ROI, most displaced employees would likely
 28 move out of the area to seek other opportunities with the Army or other employers. There are
 29 few employing sectors in the ROI to absorb displaced military employees. A small number of
 30 displaced personnel may seek and find work in the ROI; however, others may not be able to find
 31 new employment, with possible implications for the unemployment rate.

1 Students and trainees and their visitors at Fort Gordon may have a substantial impact on the local
2 economy through lodging, eating, and shopping expenditures. Additionally, formal graduation
3 ceremonies generate demand for lodging and dining facilities when Family members attend. The
4 impact to Fort Gordon’s training missions cannot be determined until after the Army completes
5 its force structure decisions; therefore, analyzing the impact to those missions is beyond the
6 scope of this document.

7 **Housing**

8 The population reduction would lead to a decreased demand for housing and increased housing
9 availability on the installation and in the region, potentially resulting in a reduction in median
10 home values. It is expected that Alternative 1 would have a minor, adverse impact to housing
11 throughout the ROI.

12 **Schools**

13 Under Alternative 1, the reduction of 4,683 Army personnel would potentially decrease the
14 number of children by 4,496 in the ROI. It is anticipated that school districts that provide
15 education to children on Fort Gordon as well as schools in Richmond and Columbia counties
16 would be impacted by this action, resulting in a decline in enrollment. School districts with
17 larger portions of military children in proximity to Fort Gordon would be more affected than
18 those with fewer military students. If enrollment in individual schools declines substantially,
19 schools may need to reduce the number of teachers, administrators, and other staff, and
20 potentially close or consolidate with other schools within the same school district should
21 enrollment fall below sustainable levels.

22 The reduction of Soldiers on Fort Gordon would result in a loss of Federal Impact Aid dollars in
23 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
24 who are considered “federally connected” and attend district schools. Actual projected dollar
25 amounts cannot be determined at this time due to the variability of appropriated dollars from
26 year to year, and the uncertainty of actual number of affected school-age children for military
27 and civilian Families. School districts in the ROI would likely need fewer teachers and materials
28 as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall,
29 adverse impacts to schools associated with Alternative 1 would be minor to significant
30 depending on the reduction in the number of military-connected students attending
31 specific schools.

32 **Public Services**

33 The demand for law enforcement, medical care providers, and fire and emergency service
34 providers on the installation may decrease if Soldiers, Army civilians, and their Families affected
35 under Alternative 1 move to areas outside the ROI. Adverse impacts to public services could
36 conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire
37 and rescue crews on the installation. These scenarios are not reasonably foreseeable, however,

1 and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the
2 Army is committed to meeting health and safety requirements.

3 However, as described under the 2013 PEA, there is a potential for adverse impacts to public
4 health under Alternative 1. In FY 2010, Fort Gordon paid local hospitals and health care
5 providers \$148.5 million for care of active component Soldiers and maintained a \$3.7 million
6 contract with Trinity Hospital for all obstetrics care. These contracts provided a total of 152.2
7 million to local health care facilities. Reduction in Army personnel assigned to Fort Gordon
8 would likely reduce the amount of local medical contracts. Additional financial burden would be
9 placed on companies, communities, and institutions, with implications for the provision of
10 services and viability of operations. Impacts to healthcare services are anticipated because they
11 receive funding, support, time, donations, and tax revenue directly related to the number of
12 military authorizations and the number of Family members. Therefore, it is possible that adverse
13 impacts to public services could conceivably occur if personnel cuts were to affect hospitals off
14 the installation. However, the impacts to public services are not expected to be significant
15 because the service level for the installation and the ROI would still be provided.

16 ***Family Support Services and Recreation Facilities***

17 Family Support Services and recreation facilities would experience reduced demand and use and
18 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
19 committed to meeting the needs of the remaining population on the installation. As a result,
20 minor impacts to Family Support Services and recreation facilities would occur under
21 Alternative 1.

22 ***Environmental Justice and Protection of Children***

23 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
24 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
25 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
26 and adverse human health or environmental effects of its programs, policies, and activities on
27 minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the
28 ROI differs from that of the state as a whole. There are larger African American populations in
29 all ROI counties, with the exception of Columbia County, when compared to the state’s
30 proportions of these populations. Additionally, Jefferson County has a higher portion of people
31 living in poverty when compared to the state of Georgia as a whole. Alternative 1 would impact
32 the minority populations in the ROI. Because minority populations are more heavily
33 concentrated in the ROI, Alternative 1 has the potential to result in adverse impacts to minority-
34 owned and/or -staffed businesses if Soldiers and Army civilians directly affected under
35 Alternative 1 move to areas outside the ROI. With the reduction in the Army economic influence
36 both in Augusta-Richmond County and on the installation, minority and low income Families
37 would be affected. However, these populations would not be disproportionately affected under
38 Alternative 1.

1 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
2 federal agencies are required to identify and assess environmental health and safety risks that
3 may disproportionately affect children and to ensure that the activities they undertake do not
4 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
5 were to be realized, the Army is committed to implementing required environmental compliance
6 and meeting the health and safety needs of the people associated with the installation, including
7 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
8 environmental health and safety risks to children within the ROI. Additionally, this analysis
9 evaluates the effects associated with workforce reductions only, and any subsequent actions on
10 the installation that may require ground-disturbing activities that have the potential to result in
11 environmental health and safety risks to children, such as demolishing vacant buildings, is
12 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
13 as appropriate.

14 **4.9.13 Energy Demand and Generation**

15 **4.9.13.1 Affected Environment**

16 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
17 PEA as described in Section 4.7.1.2 because there were no significant, adverse environmental
18 impacts from implementing alternatives included in the analysis. As described in the 2013 PEA,
19 Fort Gordon's electric and natural gas systems are both privatized. The Georgia Power Company
20 provides 115-kV primary power to two substations at Fort Gordon (main and hospital), which in
21 turn provide power to the entire installation. The Army Energy Initiatives Task Force is working
22 with the Georgia Power Company to possibly establish a 30 megawatt solar field at Fort Gordon.
23 Natural gas is provided by the Atlanta Gas Light Company. Natural gas is supplied to heating
24 and cooling plants, housing, barracks, medical facilities, academic facilities, and other facilities.

25 **4.9.13.2 Environmental Effects**

26 **No Action Alternative**

27 Negligible impacts to energy demand are anticipated under the No Action Alternative. No
28 changes to utility systems would be necessary. As noted in the 2013 PEA, the abundance of
29 energy sources, and adequate supplies from each source, provide Fort Gordon with ample excess
30 energy capacity, allowing it to accommodate a variety of future mission expansion scenarios.

31 **Alternative 1—Implement Force Reductions**

32 The analysis of force reductions included in the 2013 PEA concluded that there would be minor,
33 beneficial impacts to energy demand. Fort Gordon anticipates that further proposed reduction in
34 forces would also have minor, beneficial impacts to energy demand because there would be a
35 decrease in the amount of energy consumed with reduced levels of military personnel and Family
36 members. In addition, the installation would continue to look for opportunities to conserve

1 energy and consume less energy while becoming more efficient in its usage of its existing
2 energy supply.

3 **4.9.14 Land Use Conflicts and Compatibility**

4 **4.9.14.1 Affected Environment**

5 The land use affected environment of Fort Gordon remains the same as described in Section
6 4.5.13.1 of the 2013 PEA.

7 **4.9.14.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, the 2013 PEA anticipated that significant but mitigable
10 impacts to land use are anticipated under the No Action Alternative. Urban growth and
11 incompatible development around the installations borders would continue to encroach on the
12 training mission, but implementation of the approved Fort Gordon ACUB proposal would
13 mitigate incompatible growth and reduce potential future training restrictions.

14 **Alternative 1—Implement Force Reductions**

15 The 2013 PEA concluded that the force reductions at Fort Gordon would slow or halt regional
16 growth around the installation. Impacts would remain significant but mitigable through
17 implementation of the ACUB program. Under Alternative 1, impacts would be similar to those
18 described in the 2013 PEA.

19 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
20 with land use ordinances and regulations. Even if the full end-strength reductions were to be
21 realized at Fort Gordon, the Army would ensure that adequate staffing remains so that the
22 installation would comply with all mandatory environmental regulations including land use
23 ordinances and regulations.

24 **4.9.15 Hazardous Materials and Hazardous Waste**

25 **4.9.15.1 Affected Environment**

26 Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis
27 in the 2013 PEA (Section 4.7.1.2) due to lack of significant, adverse environmental impacts
28 resulting from the implementation of the analyzed alternatives. No substantial changes have
29 occurred to the affected environment since 2013.

1 **4.9.15.2 Environmental Effects**

2 **No Action Alternative**

3 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
4 Use of hazardous materials and generation of hazardous wastes would continue on Fort Gordon
5 in accordance with all applicable laws, regulations, and plans.

6 **Alternative 1—Implement Force Reductions**

7 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous
8 materials and hazardous waste would occur on Fort Gordon. Alternative 1 in this SPEA is not
9 expected to involve major changes to the installation operations or types of activities conducted
10 on Fort Gordon. Alternative 1 in this SPEA would not negatively impact the current hazardous
11 waste handling capabilities on Fort Gordon. There may be a slight decrease in the amount of
12 hazardous materials and hazardous waste used and disposed of as a result of the implementation
13 of Alternative 1 with reduced levels of military personnel.

14 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
15 regulations governing the handling, management, disposal, and clean up, as appropriate, of
16 hazardous materials and hazardous waste.

17 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
18 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
19 therefore, potential impacts from these activities are not analyzed.

20 **4.9.16 Traffic and Transportation**

21 **4.9.16.1 Affected Environment**

22 Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA
23 for Fort Gordon as described in Section 4.7.1.2, due to negligible impacts as a result of
24 implementing alternatives included in that analysis. No changes have occurred to the affected
25 environment since 2013. As described in the 2013 PEA, the basic roadway is adequate for
26 installation traffic, except at major intersections during peak traffic flow.

27 **4.9.16.2 Environmental Effects**

28 **No Action Alternative**

29 Negligible impacts to traffic or transportation are anticipated under the No Action Alternative.
30 Traffic LOS would remain the same under the No Action Alternative as described in the 2013
31 PEA.

1 **Alternative 1—Implement Force Reductions**

2 There would be beneficial overall impacts to traffic and transportation networks as a result of the
3 implementation of Alternative 1. There would be less congestion on and off the installation
4 attributable to the reduction in Soldier and Family member personnel. Less traffic would
5 accumulate at access and entry points around peak working hours.

6 **4.9.17 Cumulative Effects**

7 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
8 realignment at Fort Gordon encompasses four counties in the state of Georgia: Columbia,
9 Jefferson, McDuffie, and Richmond. Section 4.7.5 of the 2013 PEA noted numerous planned or
10 proposed actions within the ROI that reasonably could be initiated within the next 5 years and
11 would have the potential to cumulatively add impacts to Alternative 1. A number of the Army’s
12 proposed projects have been previously identified in the installation’s Real Property Master
13 Planning Board and are programmed for future execution. Additional actions have been
14 identified beyond those noted in the cumulative effects analysis of the 2013 PEA and are
15 noted below.

16 **Reasonably Foreseeable Future Projects on Fort Gordon**

17 The “Road to Growth” EA is being prepared to analyze potential growth of up to 6,000
18 personnel associated with various proposed force structure actions.

19 **Reasonably Foreseeable Future Projects outside Fort Gordon**

20 The Army is not aware of any reasonably foreseeable future projects outside Fort Gordon that
21 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
22 projects and actions that affect regional economic conditions and generally include construction
23 and development activities, infrastructure improvements, and business and government projects
24 and activities. Additionally, larger economies with more job opportunities could absorb some of
25 the displaced Army workforce, lessening adverse effects for force reductions.

26 **No Action Alternative**

27 Implementation of the No Action Alternative would not result in cumulative impacts. Current
28 socioeconomic conditions would persist within the ROI, and the No Action Alternative would
29 not contribute to any changes.

30 **Alternative 1—Implement Force Reduction**

31 Cumulative effects from Alternative 1 would be essentially the same as was determined in the
32 2013 PEA. Cumulative impacts as a result of the implementation of Alternative 1 could range
33 from beneficial to minor and adverse.

1 The socioeconomic impact within the ROI described in Section 4.9.12 with a reduction of 4,683
2 Soldiers and Army civilians would be minor and adverse on the regional economy, schools, and
3 housing with significant impacts to population. Fort Gordon is located in the Augusta, Georgia
4 metropolitan area with over 380,000 residents in the ROI. Because of the large employment base
5 and diverse economy in the region, the ROI would be less vulnerable to these force reductions
6 because other industries and considerable economic activity occurs within the ROI.

7 Other current and future stationing and realignment activities on the installation, such as the
8 Army Cyber Command and Road to Growth stationing actions, would or have the potential to
9 increase military personnel at Fort Gordon. These changes would likely offset most of the force
10 reductions under Alternative 1, resulting in minimal adverse impacts to population, the regional
11 economy, public services, schools, and housing.

12 Fort Gordon is home to the Cyber Center of Excellence and provides Communications and
13 Information Technology training for Soldiers. Fort Gordon averages approximately 5,700
14 students assigned for training at any one time. Reduced training opportunities could result from
15 force reductions on Fort Gordon. This could lead to further adverse impacts to socioeconomic
16 conditions because of reduced temporary population and visitors and the attendant economic
17 activity, spending, and jobs and income they support.

18 Other construction and development activities on the installation and in the ROI would benefit
19 the regional economy through additional economic activity, jobs, and income in the ROI. Under
20 Alternative 1, the loss of approximately 4,600 Soldiers and Army civilians, in conjunction with
21 other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic
22 conditions in the broader ROI.

1 **4.10 Fort Hood, Texas**

2 **4.10.1 Introduction**

3 Fort Hood was analyzed in the 2013 PEA. Background information on the installation, including
 4 location, tenants, mission, and population, is discussed in Section 4.8.1 of the 2013 PEA.

5 Fort Hood’s 2011 baseline permanent party population was 47,190. In this SPEA, Alternative 1
 6 assesses a potential population loss of 16,000, including approximately 14,606 permanent party
 7 Soldiers and 1,394 Army civilians.

8 **4.10.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental impacts are anticipated for Fort Hood; however, significant
 11 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 12 4.10-1 summarizes the anticipated impacts to VECs under each alternative.

13 **Table 4.10-1. Fort Hood Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Negligible	Beneficial

14

1 **4.10.3 Air Quality**

2 **4.10.3.1 Affected Environment**

3 The air quality affected environment of the Fort Hood ROI remains the same as described in
4 Section 4.8.2.1 of the 2013 PEA. The Fort Hood area has not been designated as a nonattainment
5 area for any criteria pollutants (EPA, 2013).

6 **4.10.3.2 Environmental Effects**

7 **No Action Alternative**

8 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
9 emissions at current levels, as well as fugitive dust impacts from training activities, would result
10 in minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this
11 SPEA remain the same as described in the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 The 2013 PEA concluded that the force reductions at Fort Hood would result in long-term,
14 minor, beneficial impacts to air quality due to reduced operations and maintenance activities and
15 reduced vehicle miles travelled associated with the facility. Impacts to air quality from the
16 increased size of the force reductions proposed under Alternative 1 would continue to be
17 beneficial assuming a corresponding decrease in operations and vehicle travel to and from Fort
18 Hood. The size of this beneficial impact under Alternative 1 would be roughly double that
19 anticipated at the time of the 2013 PEA.

20 The relocation of personnel outside of the area due to force reductions could result in negligible,
21 short-term effects on air quality associated with mobile sources. As discussed in Chapter 1, the
22 demolition of existing buildings or placing them in caretaker status as a result of the force
23 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
24 potential impacts from these activities are not analyzed.

25 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
26 quality regulations. Even if the full end-strength reductions were to be realized at Fort Hood, the
27 Army would ensure that adequate staffing remains so that the installation would comply with all
28 mandatory environmental regulations.

29 **4.10.4 Airspace**

30 **4.10.4.1 Affected Environment**

31 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
32 Section 4.8.1.2 because of lack of significant, adverse environmental impacts from implementing
33 alternatives included in that analysis. No changes have occurred to the affected environment

1 since 2013. As described in the 2013 PEA, Fort Hood has four Army-operated airfields on site
2 with SUA around these airfields being divided into airspace subdivisions that includes R-6302A-
3 E, all based on different geographies and ranging from the surface up to 45,000 feet msl in
4 certain portions. As noted in the 2013 PEA, Fort Hood is currently in the process of expanding
5 its SUA, MOA to include 10,000 feet msl to 17,000 feet msl, which will greatly improve the
6 capacity to train fixed-wing aircraft as well as UAS.

7 **4.10.4.2 Environmental Effects**

8 **No Action Alternative**

9 The 2013 PEA concluded that there would be negligible impacts to airspace at Fort Hood under
10 the No Action Alternative. For the current analysis, Fort Hood would continue to maintain
11 current airspace operations and current airspace classifications and restrictions are sufficient to
12 meet current airspace requirements and no airspace conflicts are anticipated. Impacts to airspace
13 would be the same as described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that
16 negligible, beneficial impacts to airspace would occur at Fort Hood. Under Alternative 1,
17 implementation of further force reductions is not expected to change installation operations or
18 the types of activities conducted on Fort Hood. There could potentially be a lower utilization rate
19 of existing SUA as some units where UAS may be inactivated and no longer require the use of
20 the existing SUA. Overall, these reductions would result in a negligible, beneficial impact
21 to airspace.

22 **4.10.5 Cultural Resources**

23 **4.10.5.1 Affected Environment**

24 The affected environment for cultural resources at Fort Hood has not changed since 2013, as
25 described in Section 4.8.3 of the 2013 PEA.

26 **4.10.5.2 Environmental Effects**

27 **No Action Alternative**

28 Implementation of the No Action Alternative would result in negligible impacts to cultural
29 resources as described in Section 4.8.3.2 of the 2013 PEA. Activities with the potential to affect
30 cultural resources would continue to be monitored and regulated through the use of existing
31 agreements and/or preventative and minimization measures.

1 **Alternative 1—Implement Force Reductions**

2 As described in Section 4.8.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on
3 cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-
4 compliance with cultural resources regulations. Even if the full end-strength reductions were to
5 be realized at Fort Hood, the Army would ensure that adequate staffing remains so that the
6 installation would comply with all mandatory environmental regulations at Fort Hood.

7 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
8 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
9 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
10 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
11 necessary to vacate or demolish structures as a result of force reductions, the installation would
12 comply with applicable laws, such as NHPA, and conduct the necessary analyses and
13 consultation to avoid, minimize, and/or mitigate these effects.

14 This alternative could result in some beneficial effects as a decrease in training activities could
15 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
16 fewer people to support, there may be a reduction in the number of undertakings with the
17 potential to affect cultural resources.

18 **4.10.6 Noise**

19 **4.10.6.1 Affected Environment**

20 The noise affected environment of the Fort Hood installation remains the same as described in
21 Section 4.3.5.1 of the 2013 PEA. The primary sources of noise at Fort Hood include weapons
22 fire and ground maneuver training.

23 **4.10.6.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative in the 2013 PEA, negligible impacts to noise were anticipated
26 from the continuing nature, levels, and intensity of noise generating training operations at the
27 installation. Impacts under the No Action Alternative on Fort Hood remain the same as those
28 discussed in Section 4.8.4.2 of the 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

30 The 2013 PEA concluded that the force reductions at Fort Hood would result in negligible and
31 slightly beneficial noise impacts due to an anticipated reduction in the frequency of noise
32 generating training events. The negligible, beneficial impact under Alternative 1 would be
33 similar to that anticipated at the time of the 2013 PEA.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
2 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
3 Fort Hood, the Army would ensure that adequate staffing remains so that the installation would
4 comply with all mandatory environmental regulations including noise ordinances
5 and regulations.

6 **4.10.7 Soils**

7 **4.10.7.1 Affected Environment**

8 The soils affected environment on the installation remains the same as was discussed in Section
9 4.8.5.1 of the 2013 PEA.

10 **4.10.7.2 Environmental Effects**

11 **No Action Alternative**

12 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
13 anticipated from continuing training, to include impacts to soils from removal of or damage to
14 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
15 used in training events. Impacts under the No Action Alternative on Fort Hood remain the same
16 as those discussed in Section 4.8.5.2 of the 2013 PEA.

17 **Alternative 1—Implement Force Reductions**

18 Under Alternative 1 of the 2013 PEA, negligible, beneficial impacts to soils were anticipated as a
19 result of less use of training areas. A force reduction would result in less erosion, soil
20 compaction, and loss of vegetation.

21 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
22 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
23 potential impacts from these activities on soils are not analyzed.

24 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
25 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
26 Hood, the Army would ensure that adequate staffing remains so that the installation would
27 comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Hood
28 would be beneficial and remain the same as those discussed in Section 4.8.5.2 of the 2013 PEA.

1 **4.10.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
2 **Species)**

3 **4.10.8.1 Affected Environment**

4 The affected environment for biological resources at Fort Hood has not had substantive changes
5 since 2013, as described in Section 4.8.6.1 of the 2013 PEA.

6 **4.10.8.2 Environmental Effects**

7 **No Action Alternative**

8 Implementation of the No Action Alternative would result in minor impacts similar to those that
9 are currently occurring to biological resources as described in Section 4.8.6.2 of the 2013 PEA.
10 In accordance with Army Regulation 200-1, Fort Hood has prepared an ESMP (Fort Hood, 2007)
11 and an INRMP, which provide comprehensive guidelines for maintaining and enhancing
12 populations and habitats of federally listed and candidate species on Fort Hood while
13 maintaining mission readiness consistent with Army and federal environmental regulations. Fort
14 Hood would also continue briefing units regarding sensitive areas prior to each training event,
15 helping to further minimize any adverse impacts.

16 **Alternative 1—Implement Force Reductions**

17 Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort
18 Hood. Scheduling conflicts for training area access to conduct natural resource monitoring and
19 management activities would be reduced with a projected decrease in the amount of training
20 being conducted. Proactive conservation management practices, such as those outlined in the
21 INRMP, would be more easily accomplished with reduced mission input. The frequency of
22 disturbance of wildlife from training would decrease as a result of this alternative.

23 Adverse impacts could conceivably occur if force reductions prevented environmental
24 compliance from being implemented. The Army, however, is committed to ensuring that
25 personnel cuts will not result in non-compliance with natural resources regulations. Even if the
26 full end-strength reductions were to be realized at Fort Hood, the Army would ensure that
27 adequate staffing remains so that mandated environmental requirements would continue to
28 be met.

29 **4.10.9 Wetlands**

30 **4.10.9.1 Affected Environment**

31 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in
32 Section 4.8.1.2, because of the lack of significant, adverse environmental impacts as a result of
33 implementing alternatives included in that analysis. No changes have occurred to the affected
34 environment since 2013.

1 **4.10.9.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible impacts to installation
4 wetlands and the affected environment would remain in its present state.

5 **Alternative 1—Implement Force Reductions**

6 Per Section 4.7.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under
7 Alternative 1. The installation would continue to manage its wetlands in accordance with the
8 installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts
9 to wetlands could conceivably occur if the further force reductions decreased environmental
10 staffing levels to a point where environmental compliance could not be properly implemented.
11 The Army is committed, however, to ensuring that personnel cuts will not result in non-
12 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
13 at Fort Hood, the Army would ensure that adequate staffing remains so that mandated
14 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
15 Fort Hood would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

16 **4.10.10 Water Resources**

17 **4.10.10.1 Affected Environment**

18 The affected environment for water resources on Fort Hood remains the same as that described
19 in Section 4.8.7.1 of the 2013 PEA. There are no changes to surface water, waters of the United
20 States, water supply, wastewater, and stormwater resources.

21 **4.10.10.2 Environmental Effects**

22 **No Action Alternative**

23 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
24 Alternative due to the disturbance and pollution of surface waters from training activities.
25 Surface water impacts under the No Action Alternative would remain the same as described in
26 the 2013 PEA.

27 **Alternative 1—Implement Force Reductions**

28 Beneficial impacts to water resources were anticipated from implementation of force reductions
29 under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply and
30 wastewater treatment and an increase in available wastewater treatment capacity. Reduction in
31 training area use from force reductions on Fort Hood was also anticipated to potentially reduce
32 impacts to surface waters from disturbance and spills. Increased force reductions under
33 Alternative 1 of this SPEA would continue to have the same beneficial impacts to water supplies,
34 wastewater capacity, and surface waters.

1 Adverse water resources impacts could conceivably occur if personnel cuts prevented
2 environmental compliance from being implemented. The Army is committed to ensuring that
3 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
4 end-strength reductions were to be realized at Fort Hood, the Army would ensure that adequate
5 staffing remains so that mandated environmental requirements would continue to be met
6 and implemented.

7 **4.10.11 Facilities**

8 **4.10.11.1 Affected Environment**

9 The facilities affected environment of the Fort Hood installation remains the same as described
10 in Section 4.8.8.1 of the 2013 PEA.

11 **4.10.11.2 Environmental Effects**

12 **No Action Alternative**

13 The 2013 PEA concluded that there would be negligible impacts to facilities under the No
14 Action Alternative at Fort Hood. The Army has prioritized the installation's current facility
15 shortfalls for programming and funding. The installation would continue to use its existing
16 facilities and cantonment areas as they are currently being used; therefore, the impacts would
17 remain the same as described in the 2013 PEA.

18 **Alternative 1—Implement Force Reductions**

19 The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to
20 facilities would occur on Fort Hood. Under Alternative 1, implementation of proposed further
21 force reductions would continue to have overall minor, adverse impacts. Impacts would occur
22 from the fact that construction or expansion projects that had been programmed in the future may
23 not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities
24 to newer facilities may require modification to existing facilities; and more buildings within the
25 installation may become vacant or underutilized due to reduced requirements for facilities, which
26 would have a negative impact on overall space utilization. Some beneficial impacts are also
27 expected as a result of force reductions such as reduced demands for utilities and reduced
28 demands for training facilities and support services. The force reductions would also reduce
29 reliance on temporary and relocatable structures currently supporting installation administrative
30 functions. Some facilities could be re-purposed to reduce crowding or support other units. As
31 discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as
32 a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this
33 SPEA; therefore, potential impacts from these activities are not analyzed.

1 **4.10.12 Socioeconomics**

2 **4.10.12.1 Affected Environment**

3 Fort Hood is located outside Killeen, Texas, in Bell and Coryell counties halfway between
 4 Austin and Waco, Texas. The ROI includes Bell, Coryell, and Lampasas counties. The ROI
 5 includes counties that are generally considered the geographic extent to which the majority of the
 6 installation’s Soldiers, Army civilians, and contractor personnel and their Families reside. The
 7 population and workforce at Fort Hood have long been an essential element of the
 8 regional economy.

9 There are additional counties, such as McLennan and Falls, in which Soldiers and Army civilians
 10 and their Families may also reside. However, the number of residents in these counties is
 11 expected to be small, and therefore these counties are not included in the ROI. The vast majority
 12 of the population and economic impacts would be experienced within the ROI. Fort Hood was
 13 also discussed in Section 4.8.9 of the 2013 PEA.

14 **Population and Demographics**

15 Using 2011 as a baseline, Fort Hood has a total working population of 66,385 consisting of
 16 active component Soldiers and Army civilians, students and trainees, other military services,
 17 civilians and contractors. Of the total working population, 47,190 were permanent party Soldiers
 18 and Army civilians. The population that lives on Fort Hood consists of 6,286 Soldiers and their
 19 9,542 Family members for a total resident population of 15,828 (Baldwin, 2014). The portion of
 20 Soldiers and Army civilians living off the installation is estimated to be 102,996 and consists of
 21 Soldiers, Army civilians, and Family members. Additionally, there are 247 students and trainees
 22 associated with the installation.

23 In 2012, the population of the ROI was 417,992 (U.S. Census Bureau 2012a). Between 2010 and
 24 2012, the population in Bell and Coryell counties increased between 2 and 4 percent while it
 25 decreased slightly in Lampasas County (Table 4.10-2). The racial and ethnic composition of the
 26 ROI is presented in Table 4.10-3.

27 **Table 4.10-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bell County, Texas	323,536	+4.3
Coryell County, Texas	76,850	+1.9
Lampasas County, Texas	17,606	-1.5

1 **Table 4.10-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1.0	4.2	1.7	38.2	44.5
Bell County, Texas	68.4	22.4	1.1	3.1	4.2	22.7	49.6
Coryell County, Texas	75	16.8	1.2	2.1	4.1	17.0	60.9
Lampasas County, Texas	90.9	3.7	1.1	1.3	2.7	18.1	74.4

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Between 2000 and 2012, employment increased in the state of Texas, as well as Bell and
 5 Lampasas counties, but fell in Coryell County (U.S. Census Bureau, 2000 and 2012b). None of
 6 the counties in the ROI have a percentage of their residents living below the poverty level that is
 7 substantially greater than the same measure at the state level. Lampasas County had the lowest
 8 median household income at \$47,968, approximately 7 percent lower than median household
 9 income at the state level. Employment, median home value and household income, and poverty
 10 levels are presented in Table 4.10-4 (U.S. Census Bureau, 2012b).

11 **Table 4.10-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Texas	11,546,783	+24	\$128,000	\$51,563	17
Bell County, Texas	143,389	+25	\$119,800	\$50,085	15
Coryell County, Texas	31,606	-9	\$98,300	\$50,104	13
Lampasas County, Texas	8,669	+7	\$122,500	\$47,968	17

1 Information regarding the workforce by industry for each county within the ROI was obtained
2 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
3 the employed labor force.

4 **Bell County, Texas**

5 According to the U.S. Census Bureau, the educational services, and health care and social
6 assistance sector accounts for the largest share of the total workforce in Bell County (22 percent).
7 The Armed Forces is the second largest employer (16 percent), followed by retail trade (11
8 percent). The arts, entertainment, and recreation, and accommodation and food services and the
9 public administration sectors also account for a significant share of the total workforce in Bell
10 County (8 percent each). The remaining sectors account for 35 percent of the total workforce.

11 **Coryell County, Texas**

12 The primary source of employment in Coryell County is the Armed Forces (26 percent). The
13 educational services, and health care and social assistance is the second largest employment
14 sector (17 percent), followed by the public administration sector (13 percent). Retail trade also
15 represents a significant share of the total workforce in Coryell County (8 percent). The remaining
16 sectors account for 36 percent of the total workforce.

17 **Lampasas County, Texas**

18 The educational services, and health care and social assistance sector accounts for the greatest
19 share of the total workforce in Lampasas County (20 percent). Retail trade is the second largest
20 employment sector (13 percent), followed by construction (12 percent). The professional,
21 scientific, and management, and administrative and waste management services sector also
22 accounts for a significant share of the total workforce (11 percent). The Armed Forces account
23 for 2 percent of the Lampasas County workforce. The remaining sectors account for 42 percent
24 of the workforce.

25 **Housing**

26 As described in the 2013 PEA, Fort Hood has extensive housing on the installation for Families
27 and single Soldiers. Fort Hood has more than 6,000 homes in 13 housing areas, many of which
28 have recently been renovated as part of privatization. In addition to these homes, Fort Hood
29 provides single Soldiers with space in the barracks for accommodations. Existing homes on the
30 installation include single-family and multi-family homes, from two to five bedrooms. A large
31 percentage of Soldiers also opt to live in private rental housing or own homes in the communities
32 surrounding Fort Hood.

1 **Schools**

2 As described in the 2013 PEA, Killeen ISD serves the communities of Killeen, Fort Hood,
3 Harker Heights, and Nolanville. The student enrollment for the 2011–2012 school year was
4 41,172. Approximately 50 percent of students enrolled were military Family members. The
5 district employs about 6,100 staff members, making it the second largest employer in the ROI.
6 The Copperas Cove ISD serves the community of Copperas Cove. The student population for the
7 2010-2011 school year was 8,324 students. Exact population by school is unknown; however, it
8 is estimated that approximately 40 percent of the student population are military Family
9 members. Further information on schools serving Fort Hood is available in the 2013 PEA.

10 **Public Health and Safety**

11 ***Police Services***

12 The Fort Hood DES handles the day to day police operations on the installation. They do this
13 with a combination of active component military police and civilian contractors. In January
14 2011, the ratio per day was 1 officer for every 33 Soldiers and 28 civilians on patrol across the
15 installation.

16 ***Fire and Emergency Services***

17 The Fort Hood Fire Department responds to emergencies involving structures, facilities,
18 transportation equipment, hazardous materials (along with DPW Environmental Spill Response
19 Team), and directs fire prevention activities. However, partnerships with the surrounding cities
20 and counties are in place to provide assistance should either party need it to respond to
21 an emergency.

22 ***Medical Facilities***

23 Medical services on Fort Hood are administered by the Carl R. Darnall Army Medical Center, as
24 well as several on-installation clinics. The clinics serve active component Soldiers, Family
25 members, and retirees throughout the community. Fort Hood also has a Warrior in Transition
26 Brigade, and new support facilities to accommodate the unit. Further, the community supported
27 medical centers include Metroplex Hospital, Scott and White Hospital and clinics, Kings
28 Daughters Hospital and supporting clinics, and a 123-bed hospital owned by Seton Enterprises.

29 **Family Support Services**

30 Fort Hood’s CYSS is a division of FMWR. It provides facilities and child care, as well as sports,
31 apprenticeships, and instructional classes for children of active component military, DoD
32 civilian, DoD contractor personnel, and retirees. In FY 2011, Parent Central Services registered
33 11,458 households and enrolled 17,593 child or youth programs.

1 **Recreation Facilities**

2 Fort Hood offers its community of Soldiers, Airmen, retirees, DoD employees, and Families
3 several different avenues for recreational entertainment. The military community is encouraged
4 to become active in an arts and crafts facility, bingo, two skate parks, an auto crafts shop,
5 outdoor swimming pools, an indoor swimming pool, a 48-lane bowling center with automatic
6 scoring displayed on 42-inch flat screen monitors, a 27-hole golf course, an RV travel camp, an
7 outdoor recreation equipment checkout center, physical fitness centers spread throughout the
8 installation, an all-terrain vehicle course, a paintball course, archery and skeet shooting ranges,
9 swimming, camping, horseback riding, mountain biking and fishing opportunities at Belton Lake
10 Outdoor Recreation Area, intramural and youth sports teams, and a Sportsmen's Center, which is
11 where patrons may purchase hunting and fishing licenses.

12 **4.10.12.2 Environmental Effects**

13 **No Action Alternative**

14 The No Action Alternative is anticipated to provide a steady-state contribution of economic and
15 social benefits and costs. No additional impacts to housing, public and social services, public
16 schools, public safety, or recreational activities are anticipated.

17 **Alternative 1—Implement Force Reductions**

18 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
19 significant impact to socioeconomic resources. The description of impacts to the various
20 components of socioeconomics is presented below.

21 ***Population and Economic Impacts***

22 Alternative 1 would result in the loss of 16,000¹⁵ Army positions (14,606 Soldiers and 1,394
23 Army civilians), each with an average annual income of \$46,760 and \$56,913, respectively. In
24 addition, this alternative would affect an estimated 8,928 spouses and 15,360 children for a total
25 estimated potential impact to 24,288 Family members. The total population of Army employees
26 and their Families directly affected under Alternative 1 would be projected to be 40,288.

27 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
28 forecasted economic impact value falls outside the historical positive or negative ranges. Table
29 4.10-5 shows the deviation from the historical average that would represent a significant change
30 for each parameter. The last row summarizes the deviation from the historical average for the
31 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated

¹⁵ This number was derived by assuming the loss of two BCTs, 60 percent of Fort Hood's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 by the EIFS model. Based on the EIFS analysis, changes in population and employment in the
 2 ROI under Alternative 1 fall outside the historical range and are categorized as a significant
 3 impact. However, there would not be a significant impact to income or sales because the
 4 estimated percentage change is within the historical range.

5 **Table 4.10-5. Economic Impact Forecast System and Rational Threshold Value**
 6 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	5.7	7.5	5.8	7.9
Economic contraction significance value	-6.4	-8.6	-7.0	-2.3
Forecast value	-4.1	-5.3	-10.7	-9.5

7 Table 4.10-6 summarizes the predicted impacts to income, employment, and population of the
 8 reductions against the 2012 demographic data. Whereas the forecast value provides a percent
 9 change from the historical average, the percentages in the following table show the economic
 10 impact as a percent of 2012 demographic and economic data. Although not in exact agreement
 11 with the EIFS forecast values, these figures show the same significance determinations as the
 12 EIFS predictions in the previous table.

13 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 14 receipts would occur over a period until 2020. The EIFS estimates were analyzed based on total
 15 cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and
 16 Army civilians under Alternative 1, EIFS estimates an additional 1,416 direct contract service
 17 jobs would also be lost. An additional 1,499 induced jobs would be lost because of the reduction
 18 in demand for goods and services within the ROI. Total reduction in employment is estimated to
 19 be 18,915, a significant 10.3 percent reduction of the total employed labor force in the ROI of
 20 183,664. Income is estimated to fall by \$870.2 million, a 5.2 percent decrease in income
 21 from 2012.

22 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$821.7 million.
 23 There would also be a loss in sales tax receipts to local and state governments. The average state
 24 and local sales tax rate for Texas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax
 25 reductions, information on the proportion of sales that would be subject to sales tax on average
 26 across the country was used. According to the U.S. Economic Census, an estimated 16 percent of
 27 sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and
 28 applicable tax rate was applied to the estimated decrease in sales of \$821.7 million, resulting in
 29 an estimated sales tax receipts decrease of \$10.7 million under Alternative 1.

1 **Table 4.10-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$870,201,600	-17,416 (Direct)	-40,288
		-1,499 (Induced)	
		-18,915 (Total)	
Total 2012 ROI economic estimates	\$16,592,415,000	183,664	417,992
Percent reduction of 2012 figures	-5.2	-10.3	-9.6

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 Of the 417,992 people (including those residing on Fort Hood) who live within the ROI, 40,288
 6 military employees and their Family members are predicted to no longer reside in the area under
 7 Alternative 1, resulting in a significant population reduction of 9.6 percent. This
 8 number could overstate potential population impacts because some of the people no longer
 9 employed by the military could continue to live and work within the ROI, finding employment in
 10 other industry sectors. However, since Fort Hood is a dominant employer and economic driver in
 11 the ROI, most displaced employees would likely move out of the area to seek other
 12 opportunities. There are few employing sectors in the ROI to absorb this large a number of
 13 displaced military employees. A small number of displaced personnel may seek and find work
 14 within the ROI; however, others may not be able to find new employment, with possible
 15 implications for the unemployment rate.

16 **Housing**

17 The population reduction would lead to a decrease in demand for housing and increase housing
 18 availability on the installation and in the region. This could potentially lead to a reduction in
 19 housing values.

20 **Schools**

21 Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilian personnel
 22 would result in a reduction of 24,288 Family members, of which 15,360 would be children. It is
 23 anticipated that school districts that provide education to Army children would be impacted by
 24 this action. Schools on and off the installation are expected to experience a decline in enrollment.
 25 School districts with larger portions of military children in proximity to Fort Hood would be
 26 more severely affected than those with fewer military students.

27 The reduction of Soldiers on Fort Hood would result in a loss of Federal Impact Aid dollars in
 28 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
 29 who are considered “federally connected” and attend district schools. Actual projected dollar
 30 amounts cannot be determined at this time due to the variability of appropriated dollars from

1 year to year, and the actual number of affected school-age children for military and civilian
2 Families. School districts in the ROI would likely need fewer teachers and materials as
3 enrollment drops, which would offset the reduced Federal Impact Aid. There is the potential for
4 significant, adverse impacts to the Kileen ISD and the Copperas Cove ISD that support Army
5 Family members under Alternative 1. There would be fewer resources available for the
6 remaining students as a result of the loss of tax revenue and the federal funds associated with the
7 reduction of students under this alternative. These school districts may, therefore, lose their
8 ability to employ the current number of staff and faculty within the ROI resulting in some
9 secondary job losses. Impacts would be greater than those described in the 2013 PEA and could
10 range from minor to significant.

11 **Public Services**

12 A reduction in personnel would have minor impacts to emergency services, fire, police, and
13 medical services because the reduction is anticipated to decrease the need for these services.
14 Adverse impacts to public services could conceivably occur if personnel cuts were to
15 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
16 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
17 any drawdown in military or civilian personnel, the Army is committed to meeting health and
18 safety requirements. The impacts to public services are not expected to be significant because the
19 existing service level for the installation and the ROI would still be available.

20 **Family Support Services and Recreation Facilities**

21 Family Support Services and recreation facilities would experience reduced demand and use and
22 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
23 committed to meeting the needs of the remaining population on the installation. As a result,
24 minor impacts to Family Support Services and recreation facilities would occur under
25 Alternative 1.

26 **Environmental Justice and Protection of Children**

27 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
28 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
29 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
30 and adverse human health or environmental effects of its programs, policies, and activities on
31 minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the
32 ROI differs from that of the state as a whole. There are larger minority populations in Coryell
33 and Bell Counties in the ROI relative to those same populations at the state level. In these areas
34 with higher proportions of environmental justice populations, there is a potential that these
35 populations could be adversely impacted by the Proposed Action. However it is not likely that
36 these impacts would fall disproportionately on these environmental justice populations.

1 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
2 federal agencies are required to identify and assess environmental health and safety risks that
3 may disproportionately affect children and to ensure that the activities they undertake do not
4 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
5 were to be realized, the Army is committed to implementing required environmental compliance
6 and meeting the health and safety needs of the people associated with the installation, including
7 children. Therefore, it is not anticipated that any environmental health and safety risks to
8 children within the ROI would occur under Alternative 1. Additionally, this analysis evaluates
9 the effects associated with workforce reductions only, and any subsequent actions on the
10 installation that may require ground-disturbing activities that have the potential to result in
11 environmental health and safety risks to children, such as demolishing vacant buildings, is
12 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
13 as appropriate.

14 **4.10.13 Energy Demand and Generation**

15 **4.10.13.1 Affected Environment**

16 The energy demand and generation affected environment of the Fort Hood installation remains
17 the same as described in Section 4.8.10.1 of the 2013 PEA.

18 **4.10.13.2 Environmental Effects**

19 **No Action Alternative**

20 Under the No Action Alternative, adverse impacts to energy demand and generation would be
21 the same as discussed in the 2013 PEA and would be negligible. Fort Hood's ranges and
22 cantonment area would continue to consume similar types of energy, and maintenance of
23 existing utility systems would continue.

24 **Alternative 1—Implement Force Reductions**

25 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
26 demand and generation would occur on Fort Hood. Under Alternative 1, a further reduction in
27 energy consumption is anticipated with the additional force reductions. The increased force
28 reductions would also provide additional beneficial impacts because the installation would be
29 better positioned to meet energy and sustainability goals through decreased demand.

30 **4.10.14 Land Use Conflicts and Compatibility**

31 **4.10.14.1 Affected Environment**

32 Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
33 Section 4.8.1.2, due to negligible impacts as a result of implementing alternatives included in
34 that analysis. Land use at Fort Hood is designated as cantonment, maneuver, live fire, and

1 airfields. The cantonment areas are like small cities with industrial, administrative, retail, and
2 housing. Maneuver and live-fire training areas support combat training activities. Additionally,
3 cattle-grazing is permitted (through 5-year leases) throughout the training areas. Airfields are
4 located adjacent to the cantonment areas and house both fixed and rotary-wing assets and support
5 facilities. Fort Hood also has Belton Lake Outdoor Recreation Area. More than 88 percent of the
6 land (more than 191,000 acres) is used for maneuver and live-fire training.

7 **4.10.14.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative in the 2013 PEA, negligible impacts to land use were
10 anticipated because no changes in land use or compatibility are anticipated. Impacts under the
11 No Action Alternative on Fort Hood remain the same as those discussed in Section 4.8.1 of the
12 2013 PEA.

13 **Alternative 1—Implement Force Reductions**

14 The 2013 PEA concluded that the force reductions at Fort Hood would result in negligible land
15 use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1,
16 impacts would be similar to those described in the 2013 PEA.

17 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
18 with land use ordinances and regulations. Even if the full end-strength reductions were to be
19 realized at Fort Hood, the Army would ensure that adequate staffing remains so that the
20 installation would comply with all mandatory environmental regulations including land use
21 ordinances and regulations.

22 **4.10.15 Hazardous Materials and Hazardous Waste**

23 **4.10.15.1 Affected Environment**

24 Hazardous materials and hazardous waste are among the VECs excluded from detailed analysis
25 in the 2013 PEA (Section 4.8.1.2) due to lack of significant, adverse environmental impacts
26 resulting from the implementation of the analyzed alternatives. No substantial changes have
27 occurred to the affected environment since 2013.

28 **4.10.15.2 Environmental Effects**

29 **No Action Alternative**

30 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
31 Use of hazardous materials and generation of hazardous wastes would continue on Fort Hood in
32 accordance with all applicable laws, regulations and plans.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous
3 materials and hazardous waste would occur on Fort Hood. Alternative 1 in this SPEA is not
4 expected to involve major changes to the installation operations or types of activities conducted
5 on Fort Hood. Alternative 1 in this SPEA would not negatively impact the current hazardous
6 waste handling capabilities on Fort Hood. There may be a minor decrease in the amount of
7 hazardous materials and hazardous waste used and disposed of as a result of the implementation
8 of Alternative 1 with reduced levels of military personnel and other people on the installation.

9 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
10 regulations governing the handling, management, disposal, and clean up, as appropriate, of
11 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
12 realized at Fort Hood, the Army would ensure that adequate staffing remains so that the
13 installation would comply with all mandatory environmental regulations.

14 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
15 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
16 therefore, potential impacts from these activities are not analyzed.

17 **4.10.16 Traffic and Transportation**

18 **4.10.16.1 Affected Environment**

19 The transportation affected environment of the Fort Hood ROI remains the same as described in
20 Section 4.8.11.1 of the 2013 PEA.

21 **4.10.16.2 Environmental Effects**

22 **No Action Alternative**

23 Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. Currently, the
24 Fort Hood transportation system adequately supports the needs of the Fort Hood community and
25 impacts negligible impacts would continue under the No Action Alternative in this analysis.

26 **Alternative 1—Implement Force Reductions**

27 The 2013 PEA concluded that the force reductions at Fort Hood would result in minor, beneficial
28 impacts to traffic and transportation systems because it was anticipated that traffic congestion
29 would be diminished slightly with a reduction in the number of personnel on the installation. The
30 same would occur under Alternative 1, with the size of the beneficial impact slightly larger than
31 anticipated at the time of the 2013 PEA due to the greater reduction in personnel on
32 the installation.

1 **4.10.17 Cumulative Effects**

2 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
3 realignment at Fort Hood consists Bell, Coryell, and Lampasas counties in Texas. Section 4.8.12
4 of the 2013 PEA noted several major projects that are planned for the near future.

5 **Reasonably Foreseeable Future Projects on Fort Hood**

6 No additional actions have been identified by the installation beyond those noted in the
7 cumulative effects analysis of the 2013 PEA.

8 **Reasonably Foreseeable Future Projects outside Fort Hood**

9 The Army is not aware of any reasonably foreseeable future projects outside Fort Hood which
10 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
11 projects and actions that affect regional economic conditions and generally include construction
12 and development activities, infrastructure improvements, and business and government projects
13 and activities. Additionally, smaller, less diversified economies will be more vulnerable to the
14 force reductions and provide fewer opportunities to displaced Army employees, while larger
15 economies with more job opportunities could absorb some of the displaced Army workforce,
16 lessening adverse effects from force reductions.

17 ***No Action Alternative***

18 The cumulative effects of the No Action Alternative would be the same as determined in the
19 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action
20 Alternative would not contribute to any changes.

21 ***Alternative 1—Implement Force Reduction***

22 As determined in the 2013 PEA, with the exception of socioeconomics, cumulative impacts
23 under Alternative 1 would range from beneficial to minor and adverse. The additional force
24 reductions with Alternative 1 of the SPEA would not result in any changes from that
25 determination. The potential cumulative impacts of Alternative 1 at Fort Hood are anticipated to
26 be significant and adverse for socioeconomics.

27 The socioeconomic impact under Alternative 1, as described in Section 4.10.12.2 with a loss of
28 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional
29 economy, schools, and housing. Fort Hood is an important economic driver in the Killeen-
30 Temple-Fort Hood metropolitan area, with total employment on the installation of over 47,000.
31 Specifically, in Bell and Coryell counties, the Armed Forces account for 16 and 26 percent of the
32 workforce, respectively, demonstrating the importance of installation to employment
33 opportunities in the region. The considerable reliance on the installation, in combination with
34 16,000 lost Army jobs, could lead to reduced Fort Hood and supporting activities in the ROI,

1 additional losses in jobs and income, with fewer job opportunities for displaced Army employees
2 in the ROI.

3 Stationing changes would also affect regional economic conditions through the jobs and income
4 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,
5 supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements
6 and construction and development activity would also benefit the regional economy through
7 additional economic activity, jobs, and income in the ROI; however, these benefits would not
8 offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under
9 Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other
10 reasonably foreseeable actions, would have significant impacts to population, employment,
11 income, tax receipts, housing values, and schools in the ROI.

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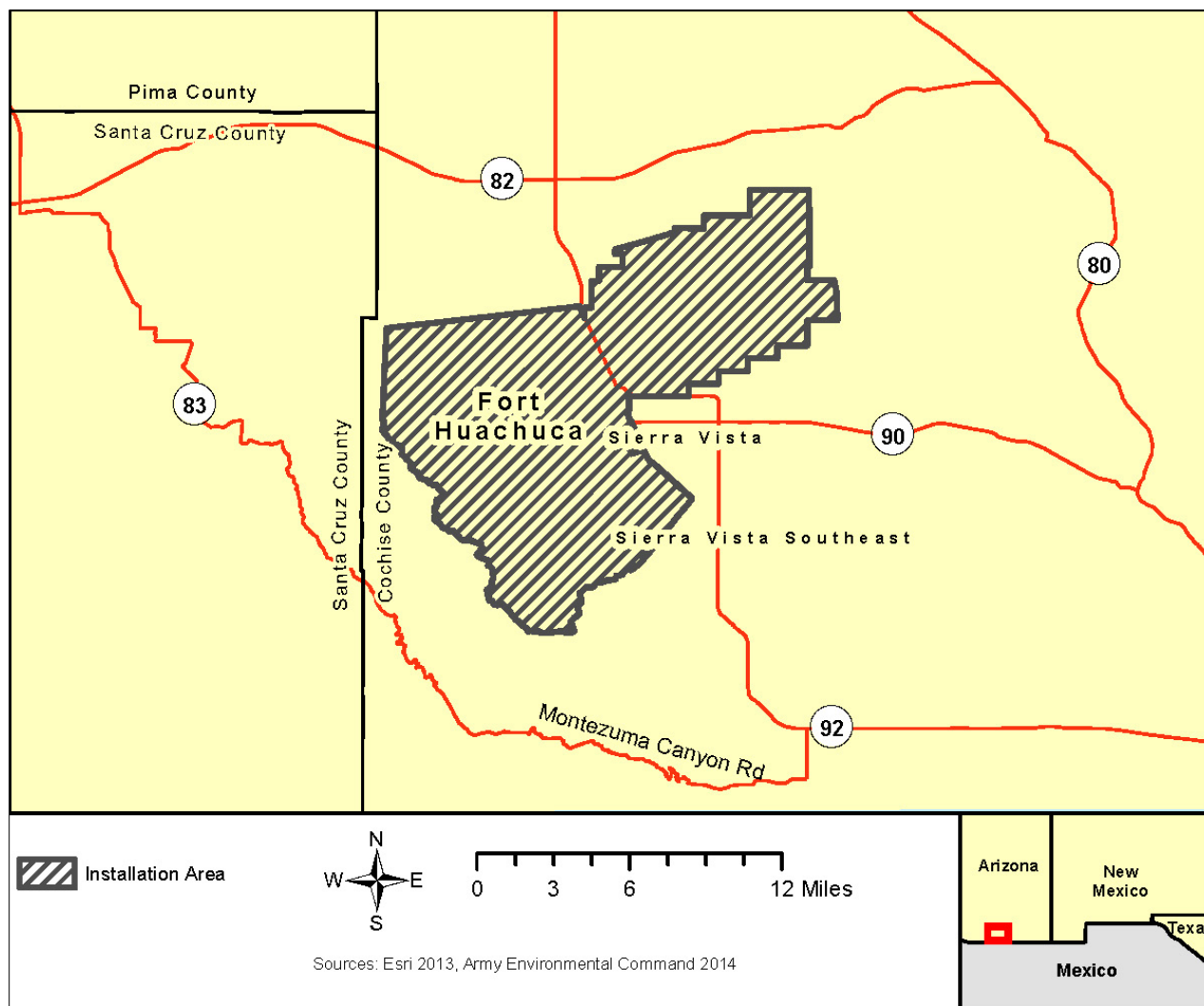
1 **4.11 Fort Huachuca, Arizona**

2 **4.11.1 Introduction**

3 Fort Huachuca is a military installation encompassing 73,142 acres of land located in the city of
4 Sierra Vista, Cochise County, Arizona (Figure 4.11-1). The installation is located approximately
5 75 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. The southernmost
6 boundary of the installation is approximately 8 miles from the international border with Mexico.
7 Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598
8 acres) by Arizona State Highway 90. The East Reservation includes the East Range, which
9 consists almost entirely of open/operational areas. The West Reservation includes the West
10 Range, South Range, Cantonment Area, and Libby AAF (U.S. Army, 2012a).

11 In 1967, the installation became the headquarters for the U.S. Army Strategic Communications
12 Command, which later was renamed the U.S. Army Communications Command. In 1973, the
13 U.S. Army Communications Management Information Systems Activity was assigned to Fort
14 Huachuca. This and the Communications Command were combined into the U.S. Army
15 Information Systems Command. In 1971 the U.S. Army Intelligence Center and School moved
16 to Fort Huachuca from Fort Holabird, Maryland. In 1988, the U.S. Army Intelligence School
17 mission of Fort Devens, Massachusetts, was relocated to Fort Huachuca (U.S. Army, 2010a).

18 BRAC brought several activities to Fort Huachuca along with over 2,000 attendant personnel. In
19 1996, the U.S. Army Information Systems Command was deactivated, and portions of the staff
20 were re-allocated to other commands at the installation. The remaining U.S. Army Information
21 Systems Command mission was re-designated as the U.S. Army Signal Command and now the
22 Network Technology Command, which remains at Fort Huachuca. Other significant units
23 currently based at Fort Huachuca include the 11th Signal Brigade, the Joint Interoperability Test
24 Command, Raymond W. Bliss Army Clinic, the 111th Military Intelligence Brigade, the Test
25 and Experimentation Intelligence Electronics Warfare Test Directorate, the Unmanned Aircraft
26 Systems Training Battalion, and the Battle Command Battle Lab (U.S. Army, 2010a).



1

2 **Figure 4.11-1. Fort Huachuca, Arizona**

3 The majority of operational testing and training at Fort Huachuca is related to intelligence,
4 electronic warfare, and communications systems. Units are engaged in the development and
5 testing of various types of electronics. These units are also involved in training Soldiers in the
6 use of this equipment in classrooms and during field training exercises. Fort Huachuca is also
7 used for field training exercises by various operational units and other DoD and non-DoD
8 agencies and currently provides military intelligence training to over 14,000 students annually.
9 According to U.S. Army (2010a), major missions assigned to the installation exist to:

- 10
- Research, develop, test, and evaluate concepts, doctrine, materials, and equipment in the
11 areas of intelligence, electronic warfare, and information systems
 - Develop, conduct, and evaluate training in intelligence, electronic warfare, and
12 information systems
13

- 1 • Provide trained operational forces in the areas of intelligence and communications
- 2 • Operate, manage, and defend the Army’s information operations and infrastructure
- 3 • Perform aviation operations
- 4 • Provide training opportunities for active component Soldiers, U.S. Army Reserve forces,
- 5 and ARNG forces

6 Fort Huachuca’s 2013 baseline permanent party population was 5,841. In this SPEA, Alternative
 7 1 assesses a potential population loss of 2,700, including approximately 1,726 permanent party
 8 Soldiers and 1,013 Army civilians.

9 **4.11.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated at Fort Huachuca; however,
 12 significant socioeconomic impacts are anticipated under Alternative 1—Implement Force
 13 Reductions. Table 4.11-1 summarizes the anticipated impacts to VECs under each alternative.

14 **Table 4.11-1. Fort Huachuca Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Beneficial
Cultural Resources	Minor	Minor
Noise	Minor	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Minor
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

1 **4.11.3 Air Quality**

2 **4.11.3.1 Affected Environment**

3 Fort Huachuca is located in an area in attainment for all criteria pollutants (EPA, 2013). A
 4 portion of Cochise County is within the Paul Spur/Douglas coarse particulate matter (PM₁₀)
 5 nonattainment area; however, Fort Huachuca is not located proximate to this nonattainment area
 6 (Arizona DOT, 2013).

7 Emission sources at Fort Huachuca include boilers, heaters, emergency back-up generators, paint
 8 booths, blast booths, and degreasers. The majority of the boilers are powered by natural gas. The
 9 facility emissions fall below the thresholds that would trigger the need for a Title V Permit. Fort
 10 Huachuca currently has a Class II synthetic minor air permit (number 53503, expiring April 11,
 11 2017). The permit conditions include various monitoring, recordkeeping, reporting, maintenance
 12 and other practices to control emissions, including dust control measures (Arizona DEQ, 2012).
 13 The potential to emit under this minor source permit is summarized in Table 4.11-2. As of the
 14 latest available annual emissions inventory (2012), total facility emissions were well below the
 15 maximum potential to emit under the permit (U.S. Army, 2013), see Table 4.11-2.

16 **Table 4.11-2. Fort Huachuca Potential to Emit and 2012 Annual Emissions Inventory**

Pollutant	2013 Permit "Potential to Emit"	2012 Annual Emissions Inventory
	(tons per year)	
PM ₁₀	7.16	1.56
PM _{2.5}	7.06	N/A
SO ₂	1.90	0.12
CO	92.25	6.54
VOC	40.74	3.18
NO _x	74.95	7.67
Hazardous air pollutants	2.56	0.61
GHGs	1.59	0.38
NO ₂	0.01	0.01
TSP	8.04	1.58
Lead	0.08	0.05

17 Sources: Arizona DEQ (2012); U.S. Army (2013)

1 **4.11.3.2 Environmental Effects**

2 **No Action Alternative**

3 Continuation of existing levels of emissions under the No Action Alternative would result in
4 minor, adverse impacts to air quality. Emissions would remain at levels well below the
5 maximum allowed under existing permits.

6 **Alternative 1—Implement Force Reductions**

7 A force reduction of 2,700 at Fort Huachuca would result in minor, long-term, and beneficial air
8 quality impacts because of reduced demand for heating/hot water and for operation of mobile
9 sources to and from the facility.

10 The relocation of personnel outside of the area due to the force reduction could result in
11 negligible, short-term effects on air quality associated with mobile sources. As discussed in
12 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
13 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
14 therefore, potential impacts from these activities are not analyzed.

15 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
16 quality regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca,
17 the Army would ensure that adequate staffing remains so that the installation would comply with
18 all mandatory environmental regulations.

19 **4.11.4 Airspace**

20 **4.11.4.1 Affected Environment**

21 The majority of airspace at and surrounding Fort Huachuca is considered restricted SUA
22 (R-2303 A-C), with flight restrictions ranging from the surface to 30,000 feet msl. These
23 restrictions encompass Fort Huachuca in its entirety with the exception of a Class D airspace
24 centered on Sierra Vista Municipal Airport, a joint-use civil-military airport that shares facilities
25 with Libby AAF. The Class D airspace extends about 6 miles in all directions from the surface to
26 7,200 msl. The restricted airspace surrounding Fort Huachuca is a vital resource for military
27 missions at Fort Huachuca, other military installations in Arizona, and for the aviation needs of
28 other organizations and agencies. The restricted airspace extends well beyond installation
29 boundaries and supports aviation missions associated with Fort Huachuca's Libby AAF,
30 approaches to the Hubbard Assault Strip, and UAS training. The combination of restricted
31 airspace and the electromagnetic environment are essential to Libby AAF operations and UAS
32 training on the installation (U.S. Army, 2010b).

33 An Aerostat Drug Surveillance Balloon (Aerostat balloon) became operational in the southern
34 portion of the South Range in 1987. The blimp-type balloon is ground-tethered and is an aerial

1 platform for radar equipment used to detect low-flying aircraft illegally entering the U.S. The
2 radar data are for U.S. Customs, DoD, and FAA. This system is in year-round operation, 24-
3 hours per day within about 23 acres of the South Range. Airspace within certain portions of the
4 South Range is restricted for Aerostat activities only up to 15,000 msl (U.S. Army, 2010b).

5 **4.11.4.2 Environmental Effects**

6 **No Action Alternative**

7 Fort Huachuca would maintain existing airspace operations under the No Action Alternative. All
8 current airspace restrictions are sufficient to meet current airspace requirements, and no airspace
9 conflicts are anticipated, resulting in no overall impacts to airspace.

10 **Alternative 1—Implement Force Reductions**

11 Airspace restrictions and classifications on and around Fort Huachuca are sufficient to meet
12 current airspace requirements, and force reductions would not substantially alter the current
13 airspace use and would not be projected to require additional SUA, resulting in negligible
14 impacts from proposed force changes. If force reductions are applied to those units using Libby
15 AAF, the use of SUA could potentially be reduced because of reduced airfield activity resulting
16 in beneficial impacts to airspace.

17 **4.11.5 Cultural Resources**

18 **4.11.5.1 Affected Environment**

19 The affected environment for cultural resources at Fort Huachuca is the installation footprint.
20 Approximately 67 percent of Fort Huachuca has been surveyed for archaeological sites, resulting
21 in the identification of 468 prehistoric and historic resources (U.S. Army, 2009b). To date, 288
22 sites have been recommended eligible to the NRHP and 88 have not been evaluated. Two
23 archaeological sites are listed in the NRHP—the Garden Canyon Site and the Garden Canyon
24 Pictographs Site (U.S. Army, 2009b). Prehistoric sites at Fort Huachuca provide evidence for use
25 of the area by nomadic hunter gatherers (8000 B.C.–200 A.D.) as well as early village life (200
26 A.D.–1450 A.D.). The Garden Canyon site is considered to be one of the largest village sites in
27 southeastern Arizona and the largest site at Fort Huachuca.

28 Fort Huachuca, originally Camp Huachuca, was established in 1877 (U.S. Army, 2009b). The
29 installation was integral in the Apache Wars, border control and later training of troops,
30 including Buffalo Soldiers and African-American Soldiers during the early to mid-20th century.
31 The history of the installation is represented in the presence of architectural resources that date
32 from the 19th century to Cold War Era. Many of the earliest operations were conducted from Old
33 Post of Fort Huachuca, which is now listed in the NRHP and is a National Historic Landmark
34 (NHL) District. The NHL District covers 57 acres and consists of 67 contributing and 26 non-
35 contributing resources (U.S. Army, 2009b). Additionally, more than 300 historic buildings are

1 located within and outside the NHL District; 47 contribute to 2 historic districts and 62 have
2 been determined individually eligible for listing in the NRHP (U.S. Army, 2009b).

3 The installation consults with 11 federally recognized tribes that are culturally affiliated with
4 resources within Fort Huachuca (U.S. Army, 2009b). These tribes have identified five locations
5 on the installation that are considered TCPs or sacred areas.

6 Fort Huachuca currently has approximately 407 cubic feet of archaeological collections and 8
7 linear feet of associated records. With the exception of artifacts at Environment and Natural
8 Resources Division being prepared for curation, all collections are curated at the Arizona State
9 Museum in Tucson.

10 Fort Huachuca has an ICRMP that is currently outdated (U.S. Army, 2009b). In addition, the
11 installation has a historic properties policy memorandum from the commander titled “Policy–
12 Mission Impact to Historic Properties.” Cultural resource management at Fort Huachuca is
13 conducted in compliance the implementing regulations for the NHPA, Section 106 (36 CFR
14 800). Fort Huachuca does have a programmatic agreement signed by DoD and Advisory Council
15 on Historic Preservation that allows for the demolition of temporary wooden World War II
16 buildings, although they have used it in the past, they have not used it recently. However, the
17 Arizona SHPO and installation both recognize that some of these buildings at Fort Huachuca are
18 important and therefore they are reviewed prior to demolition and sometimes preserved (U.S.
19 Army, 2009b).

20 **4.11.5.2 Environmental Effects**

21 **No Action Alternative**

22 Under the No Action Alternative, cultural resources would continue to be managed in adherence
23 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
24 installation would continue to consult with the SHPO and applicable tribes on the effects of
25 undertakings that may affect cultural resources. Activities with the potential to affect cultural
26 resources would continue to be monitored and regulated through the use of existing agreements
27 and/or preventative and minimization measures. The adverse impacts under the No Action
28 Alternative would be minor and would come from the continuation of undertakings that have the
29 potential to affect archaeological and architectural resources (e.g., training, maintenance of
30 historic buildings, new construction).

31 **Alternative 1—Implement Force Reductions**

32 Alternative 1 would have a minor, adverse impact to cultural resources. The Army is committed
33 to ensuring that personnel cuts will not result in non-compliance with cultural resources
34 regulations. Even if the full end-strength reductions were to be realized at Fort Huachuca, the

1 Army would ensure that adequate staffing remains so that the installation would comply with all
2 mandatory environmental regulations at Fort Huachuca.

3 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
4 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
5 potential impacts to from these activities are not analyzed. If future site-specific analysis
6 indicates that it is necessary to vacate or demolish structures as a result of force reductions, the
7 installation would comply with applicable laws, such as NHPA, and conduct the necessary
8 analyses and consultation to avoid, minimize, and/or mitigate these effects.

9 The effects of this alternative are considered to be similar to the No Action Alternative—future
10 activities with the potential to affect cultural resources would continue to be monitored and the
11 impacts reduced through preventative and minimization measures. This alternative could result
12 in some beneficial effects as a decrease in training activities could reduce the potential for
13 inadvertent disturbance of archaeological resources. Additionally, with fewer people to support,
14 there may be a reduction in the number of undertakings with the potential to affect
15 cultural resources.

16 **4.11.6 Noise**

17 **4.11.6.1 Affected Environment**

18 Activities that have the potential to produce noise at Fort Huachuca include military and private
19 vehicle use, aircraft and UAS operations, weapons discharge and other activities associated with
20 dismounted training, and occasional construction. The overall impacts from existing noise-
21 generating activities at the installation are generally considered to be less than significant due to
22 the types of activity present and the proximity to noise sensitive receptors. Buffer easements
23 surrounding the installation further reduce the potential for noise impacts beyond the
24 installation boundaries.

25 Private vehicle traffic tends to be concentrated on public off-installation roads as well as on-
26 installation roads. Military vehicles use a mixture of public roads, on-installation roads, and
27 military vehicle trails. Vehicle type and speed influence noise levels produced. Vehicle speeds
28 are relatively low on unpaved roads during vehicle maneuvers. Noise levels generated by High
29 Mobility Multipurpose Wheeled Vehicle and two-axle military trucks are comparable to noise
30 from medium trucks (about 65 to 70 dBA at 50 feet). Multi-axle heavy trucks generate noise
31 levels comparable to other heavy duty trucks (about 78 to 80 dBA at 50 feet).

32 Noise impacts related to airfield operations at Libby AAF are addressed by the Air ICUZ
33 program. Fixed-wing, manned flight operations produce the most prominent noises, while UAS
34 generate relatively little noise. UAS support equipment and increased traffic to and from training
35 and testing locations are also sources of noise relating to aviation activities. Activities associated

1 with operating UAS tend to occur in and over sparsely populated areas, which reduces the
2 number of receptors exposed to any level of noise caused by the events.

3 Noise impacts from weapons discharge at live fire ranges associated with dismounted training
4 activities are minimal because of the remote location of the ranges away from any noise-sensitive
5 land uses. Dismounted training and testing activities include the use of portable generators,
6 which can result in short-term and localized noise; however, by nature, these activities take place
7 in remote areas of the installation located away from sensitive noise receptors.

8 **4.11.6.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, existing personnel levels and installation operations would
11 continue. Associated activities with the potential to create noise impacts would also continue at
12 current levels. Given the existing impacts associated with noise at the installation as described
13 under the affected environment, it is expected that the No Action Alternative would continue to
14 generate negligible to minor noise impacts.

15 **Alternative 1—Implement Force Reductions**

16 Noise generating activities and impacts associated with force reductions under Alternative 1
17 would continue as described under the affected environment but would be decreased due to
18 fewer training activities. Alternative 1 would therefore result in beneficial impacts to noise at
19 Fort Huachuca.

20 **4.11.7 Soils**

21 **4.11.7.1 Affected Environment**

22 Fort Huachuca is located within the Basin and Range physiographic province which is
23 characterized by long, narrow mountain chains with expansive basins at their foot slopes. The
24 majority of soils on the installation are upland soils; only three soils on the installation are
25 mapped as hydric and they tend to follow along intermountain drainages and streams, and along
26 the basins at the base of the mountains. Hydric soils on the installation are characterized as deep,
27 somewhat level, poorly to somewhat poorly drained, and comprised of sandy loam underlain by
28 mixed alluvium (NRCS, 1997). Upland soils on the installation are shallow to deep, flat to
29 moderately steep, well drained sands underlain by mixed alluvium derived from igneous and
30 sedimentary rock (NRCS, 1997).

31 Soils on the installation are highly prone to erosion due to high contents of salt and gypsum
32 which cause the soil particles to deflocculate. As a result, soils on the installation have been
33 subjected to gully erosion and top soil has eroded away (U.S. Army, 2009a; U.S. Army, 2010a).

1 **4.11.7.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, minor, adverse impacts to soils are anticipated. Fort Huachuca
4 would continue to conduct training practices under their current schedule, resulting in minor
5 impacts to soils from ground disturbance and removal of vegetation. Soil erosion from wind and
6 water would proceed at current rates. Soil restoration plans and BMPs would be maintained
7 under current conditions and requirements in accordance with the INRMP (U.S. Army, 2010a).

8 **Alternative 1—Implement Force Reductions**

9 Under Alternative 1, beneficial impacts to soils are anticipated. Personnel reduction at Fort
10 Huachuca would likely result in decreased utilization of the training ranges which could have
11 beneficial impacts to soils because there would be an anticipated decrease in soil compaction and
12 vegetation loss.

13 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
14 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
15 potential impacts from these activities on soils are not analyzed.

16 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
17 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
18 Huachuca, the Army would ensure that adequate staffing remains so that the installation would
19 comply with all mandatory regulations.

20 **4.11.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 21 Species)**

22 **4.11.8.1 Affected Environment**

23 **Vegetation**

24 The vegetation of Fort Huachuca is representative of the basin and range region of southeastern
25 Arizona. Plant species composition and vegetation productivity is largely determined by rainfall
26 distribution (as influenced by topography) and soil type (as derived from bedrock). At lower
27 elevations within the San Pedro River Valley, xerophytic (adapted to living in dry environments)
28 shrubs and grasses provide sparse vegetative cover. On the moister slopes of the Huachuca
29 Mountains, stands of trees and shrubs dominate. Fort Huachuca includes vegetation types
30 ranging from shrublands, open grasslands, and mesquite-grass savannas of the lowlands, the oak-
31 grass savannas and oak woodlands of the foothills, to the pinyon-juniper and pine woodlands of
32 upper elevations, which are the dominant of the 13 vegetation types that have been mapped on
33 Fort Huachuca (U.S. Army, 2010a).

1 **Wildlife**

2 The significant wildlife diversity found in the Fort Huachuca area is directly related to the habitat
3 diversity in this region. The isolation of the Huachuca Mountains from the other mountain ranges
4 in the area results in “mountain islands.” These areas are known for their diversity of vegetation
5 types, usually along an elevational gradient, and typically exhibit high degrees of species
6 endemism. In addition, proximity to Mexico results in some wildlife species here that are not
7 known to occur elsewhere in the U.S., or that are more commonly associated with the tropics. As
8 a result, southeastern Arizona possesses one of the greatest diversities of bird species of any
9 similarly sized region in North America. More than 400 avian species regularly occur at Fort
10 Huachuca annually, with 500 species that have been recorded. Another example of the diversity
11 of the region is the 75 species of amphibians and reptiles that occur in the Huachuca Mountains
12 and Upper San Pedro River. Also, more than 180 species of butterfly have the potential to occur
13 in various habitats throughout Fort Huachuca (U.S. Army, 2010a).

14 **Threatened and Endangered Species**

15 The Fort Huachuca Programmatic Biological Assessment provides an in-depth analysis of
16 threatened, endangered, proposed, and candidate species known to occur or have occurred in
17 Cochise County and is summarized in Fort Huachuca’s INRMP (U.S. Army, 2010a). Although
18 Fort Huachuca is not required by ESA to consider candidate species, management/conservation
19 consideration for candidate species can help preclude the need to list the species and avoid
20 potential mission impacts and funding requirements for compliance (U.S. Army, 2010a).

21 A list of species that are considered threatened, endangered, proposed, or candidate is maintained
22 by USFWS. More details regarding these species can be found in the Programmatic Biological
23 Assessment except the Arizona tree frog (*Hyla wrightorum*), which was identified as a candidate
24 species in 2007 (U.S. Army, 2010a). The Arizona Department of Agriculture administers the
25 Arizona Native Plant Law, which designates species with diminishing populations or populations
26 at risk. The Fort Huachuca’s INRMP guides the installation’s natural resources
27 management program.

28 **4.11.8.2 Environmental Effects**

29 **No Action Alternative**

30 Implementation of the No Action Alternative would result in minor impacts to biological
31 resources, and the affected environment would remain in its current state. There would not be
32 any significant effects because Fort Huachuca would continue to abide by federal and state
33 regulations governing the management of biological resources.

34 **Alternative 1—Implement Force Reductions**

35 Implementing force reductions under Alternative 1 would result in beneficial impacts to
36 biological resources and habitats within Fort Huachuca. With a force reduction, there would be

1 reduced levels of training, firing, maneuvering, and testing activities to disturb sensitive
 2 individuals and habitats. Habitat would have more time to recover between events that create
 3 disturbances. Additionally, conservation management practices would be easier to accomplish
 4 with a reduction in mission throughput. Also, reduced personnel would result in reduced effluent
 5 flows from the installation’s wastewater treatment facility (a positive impact); however, reduced
 6 flows would result in less water to recharge the aquifer (a negative impact). The proposed
 7 population reduction will not affect/change requirements of the Sikes Act or the installation’s
 8 INRMP. The installation will still be required to manage wildlife and wildlife habitat, and to
 9 identify and obtain conservation easements, and preserve key native grasslands
 10 (Fort Huachuca, 2014).

11 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
 12 natural resources regulations. Even if the full end-strength reductions were to be realized at Fort
 13 Huachuca, the Army would ensure that adequate staffing remains so that the installation would
 14 comply with all mandatory environmental regulations.

15 **4.11.9 Wetlands**

16 **4.11.9.1 Affected Environment**

17 A review of NWI maps identified approximately 98 acres of palustrine, freshwater pond, and
 18 riverine wetlands within the Fort Huachuca boundary (USFWS, 2010). NWI mapping is an
 19 educated interpretation based upon interpreting USGS topographic data, the USGS National
 20 Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the
 21 installation was performed.

22 The majority of the wetlands surveyed were palustrine freshwater ponds; however, palustrine
 23 forested, palustrine emergent, and riverine wetlands were also identified (USFWS, 2010; U.S.
 24 Army, 2010a). Table 4.11-3 identifies the acres of each wetland class on the installation.

25 **Table 4.11-3. Acres of Wetland Types on Fort Huachuca**

Wetland Type	Acres
Palustrine forested	7.4
Palustrine emergent	12.0
Palustrine open water	42.6
Riverine intermittent	36.0
Total acres	98.0

26 Source: USFWS (2010)

1 **4.11.9.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts are anticipated under the No Action Alternative on Fort Huachuca.
4 Impacts to wetlands from any current projects under construction would have already been
5 assessed and, if required, been properly permitted and mitigated for. Additionally, activities that
6 occur in training areas and target areas would continue at current schedules, resulting in minimal
7 impacts to wetlands. For example, wetlands within the range fans of firing ranges would
8 continue to be impacted at the same rate.

9 **Alternative 1—Implement Force Reductions**

10 Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated.
11 A force reduction at Fort Huachuca would mean that training areas and ranges would be less
12 utilized than under the current schedule. Soil would be less disturbed from installation activities
13 and training exercises and vegetation would suffer less denuding which would further minimize
14 the potential for sediment to run off into wetlands. Wetlands that are currently degraded would
15 have time to regenerate, and their functions and values would begin to restore.

16 Adverse impacts to wetlands could conceivably occur if force reductions decreased
17 environmental staffing levels to a point where environmental compliance could not be properly
18 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
19 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
20 realized at Fort Huachuca, the Army would ensure that adequate staffing remains so that
21 mandated environmental requirements would continue to be met.

22 **4.11.10 Water Resources**

23 **4.11.10.1 Affected Environment**

24 **Surface Water/Watersheds**

25 Fort Huachuca and its surface waters are within the San Pedro River basin and the Sierra Vista
26 subwatershed. Outside the installation, the San Pedro River runs along the northeastern border
27 and one of its tributaries, the Babocomari River, runs along the northern border. The San Pedro
28 River is characterized by intermittent flow influenced by climate and regional/local water use as
29 well as an evolving river channel and floodplain (Arizona DWR, 1991, as cited by U.S. Army,
30 2010a). The Babocomari River is mostly ephemeral except for two reaches with perennial flow
31 (Arizona DWR, 1988, as cited by U.S. Army, 2010a).

32 Streams on the installation are either tributaries to the San Pedro or Babocomari rivers and are
33 within the smaller Babocomari River or Garden Canyon subwatersheds. Surface waters
34 originating in the Huachuca Mountains to the west are Huachuca Creek, Garden Creek, Ramsey

1 Creek, and Miller Creek (U.S. Army, 2009b). Other surface waters include Soldier Creek and
2 tributaries and the streams flowing out of Blacktail Canyon (U.S. Army, 2011). In addition, to
3 the 4.5 miles of perennial streams on Fort Huachuca there are numerous ephemeral dry washes,
4 gulches, and arroyos crossing the installation in northerly or northeasterly directions. These
5 ephemeral waters are seasonal in nature; dry throughout most of the year except when snowmelt
6 or rainfall events produce enough volume for runoff. These streams are characterized by narrow,
7 sometimes entrenched channels with sand and gravel beds. The installation also has 15 ponds
8 with a combined surface area of 32 acres as well as 39 springs (U.S. Army, 2008, as cited by
9 U.S. Army, 2010a; U.S. Army, 2010a). A few ponds are perennial with depths up to 15 feet
10 although most only contain water during heavy rain events (U.S. Army, 2011). Flows of surface
11 waters are affected not only by seasonal precipitation patterns and water use by vegetation but
12 also by local groundwater pumping (U.S. Army, 2009c).

13 **Groundwater**

14 A regional aquifer and a floodplain aquifer are the major groundwater sources under Fort
15 Huachuca (U.S. Army, 2009c, 2010a). These aquifers are located in the upper and lower basin
16 fills and the Pantano Formation. Together the upper and lower basin fill units are approximately
17 800 to 1,200 feet thick (Gettings and Houser, 2000, as cited by U.S. Army, 2010a; Pool and
18 Coes, 1999, as cited by U.S. Army, 2010a). The deeper regional aquifer is recharged by
19 stormwater runoff within permeable recharge areas at the base of the mountains and ephemeral
20 streams (U.S. Army, 2013). The groundwater within this aquifer is 650 to 1,300 feet thick (Pool
21 and Dickinson, 2007, as cited by U.S. Army, 2013). A shallow alluvial aquifer is associated with
22 the San Pedro River and Babocomari River floodplain areas and is recharged by stormwater
23 runoff, the regional aquifer, or the San Pedro River (U.S. Army, 2010a, 2012a). This aquifer is
24 located within the lower basin fill.

25 In general, the regional aquifer is deeper close to the mountains in the south and west and is
26 shallower near the San Pedro River. Overall groundwater flow is in the direction of the San
27 Pedro River except where cones of depression occur at well pumping sites (U.S. Army, 2006, as
28 cited by U.S. Army, 2012a). At these cones of depression, the aquifer elevations have dropped
29 causing groundwater to flow towards them instead of towards discharge areas at surface waters
30 (U.S. Army, 2006, as cited by U.S. Army, 2012a; U.S. Army, 2013). Along with other factors,
31 groundwater pumping can influence surface water levels which in turn can affect riparian
32 habitats and associated species (U.S. Army, 2010a, 2013).

33 Well pumping throughout the watershed has resulted in depletion of groundwater resources,
34 specifically changes in the water storage. Between 1990 and 2001, water levels within the
35 aquifers declined from 0.1 to 0.6 feet per year (USPP, 2008, as cited by U.S. Army, 2012a).
36 According to the Upper San Pedro Partnership (2013), although the rate of groundwater
37 depletion in the aquifer under the Sierra Vista subwatershed has decreased since 2002,
38 groundwater removal is still 4,600 acre-feet more than groundwater recharge. Although well

1 pumping for the installation has contributed to this problem, the installation is not the only
2 contributor (U.S. Army, 2010a). Withdrawal of water from wells on the installation is estimated
3 to be 5 percent of all withdrawals within the San Pedro River basin and these withdrawals are
4 responsible for approximately 31 percent of total baseflow removal and 4 percent of the total
5 depletion of groundwater (U.S. Army, 2006, as cited by U.S. Army, 2012a).

6 **Water Supply**

7 The water wells, treatment, storage, and distribution system on Fort Huachuca is owned and
8 operated by the installation (U.S. Army, 2012c). The entire Fort Huachuca water supply is
9 derived from 13 groundwater wells pumping from the regional and floodplain aquifers. Of these,
10 eight are municipal water supply wells pumping 500 to 800 gallons of water per minute from
11 wells ranging from 710 to 1,230 feet below the surface (U.S. Army, 2010a). In 2008, the
12 installation pumped 1,127 acre-feet of water from these wells. Five additional wells supply
13 minimal amounts of water for various testing and research activities. Groundwater is treated with
14 chlorine prior to entering the drinking water supply (U.S. Army, 2012c).

15 Water usage issues in the San Pedro River basin have led Fort Huachuca and other users to
16 implement water conservation practices (U.S. Army, 2010a). As part of the Upper San Pedro
17 Partnership, Fort Huachuca cooperates with other regional stakeholders through policies and
18 projects that address water management and conservation. Other water conservation programs
19 include the Fort Huachuca-Huachuca City Effluent Transfer Program where the installation
20 accepts wastewater from Huachuca City, treats it at the WWTP on the installation, and either
21 reuses the treated effluent or recharges it to the aquifer (U.S. Army, 2010a). The water
22 conservation program at Fort Huachuca has resulted in declines in water usage rates and water
23 pumping over the past several years (U.S. Army, 2013). Measures implemented include water
24 reuse, water recycling, stormwater detention basins, and artificial recharge of the aquifer (U.S.
25 Army, 2010a, 2013). Other water efficiency practices include conservation easements, upgrades
26 to low water use plumbing fixtures, removal of old facilities, repair of water leaks, xeriscaping
27 and landscaping policies, and education and outreach. The installation uses treated wastewater
28 effluent for irrigation including on the installation golf course under a permit from Arizona DEQ.

29 **Wastewater**

30 The wastewater collection and treatment system is owned by the federal government and
31 operated by contracted staff and includes force mains, lift stations, a WWTP, and aquifer
32 recharge basins. Movement of wastewater to the WWTP is mainly due to natural gravity flow
33 however some areas of the cantonment require lift stations for movement (U.S. Army, 2008, as
34 cited by U.S. Army, 2010a). The Fort Huachuca WWTP is permitted to treat and reclaim 3.1
35 mgd of wastewater (U.S. Army, 2013). The WWTP process uses denitrification, filtration, and
36 ultraviolet disinfection as well as equalization basins and waste activated sludge holding basins.
37 The WWTP facility also includes underground storage.

1 For protection of groundwater, Fort Huachuca has an aquifer protection permit from the Arizona
2 DEQ that requires the installation and the WWTP and recharge facility comply with the Aquifer
3 Water Quality Standards at effluent and groundwater monitoring sites and use Best Available
4 Demonstrated Control Technology. The Best Available Demonstrated Control Technology
5 includes the uses of denitrification and ultraviolet disinfection processes and the partial reuse of
6 the treated effluent. The effluent as well as groundwater is monitored for nitrogen, bacteria,
7 metals, and VOCs several times a year.

8 **Stormwater**

9 The stormwater management system on Fort Huachuca consists of channelized drainages and
10 culverts in addition to natural drainage channels (U.S. Army, 2009c). Several buildings on the
11 installation have systems to capture rooftop stormwater runoff. In compliance with the Arizona
12 Pollutant Discharge Elimination System, Fort Huachuca has SWPPPs and has implemented
13 stormwater control measures (U.S. Army, 2011). The installation has constructed five
14 stormwater detention basin intended to capture stormwater runoff and recharge the aquifer
15 (U.S. Army, 2013).

16 **Floodplains**

17 A FEMA floodplain determination has never been conducted on Fort Huachuca. The developed
18 cantonment area does have some areas with a low risk of flooding as do less developed areas
19 such as land designated as open space, training and recreation areas (U.S. Army, 2008, as cited
20 by U.S. Army, 2010a).

21 **4.11.10.2 Environmental Effects**

22 **No Action Alternative**

23 Minor, adverse impacts to water resources would continue under the No Action Alternative.
24 Training and test activities would continue to occur at Fort Huachuca ranges as would potential
25 disturbance to and sedimentation of surface water resources. Water demand may decrease as
26 water conservation activities and use of reclaimed water increase although these impacts would
27 likely be negligible. Stormwater management would continue as would adherence to state
28 stormwater requirements and BMP guidelines. Fort Huachuca would continue to strive to meet
29 federal and state water quality criteria, drinking water standards, and aquifer pollution protection
30 requirements. Current water resources management and compliance activities would continue to
31 occur under this alternative.

32 **Alternative 1—Implement Force Reductions**

33 Minor impacts to water resources are anticipated as a result of implementing Alternative 1. The
34 force reductions would reduce potable water demand allowing additional capacity for other
35 users. The decrease in water usage is anticipated to have a beneficial impact on surface waters
36 and groundwater resources due to reduced pumping. However, the increased force reductions are

1 expected to cause a proportionate reduction in wastewater flows to the WWTP resulting in
2 inadequate discharges for operation. This may lead to potential future water quality violations
3 due to the increased need to use effluent recycle. The Army is committed to the health and safety
4 of its tenants and the environment and would make any operational or other changes necessary to
5 ensure the proper operation of the wastewater system at the new flow levels, including adequate
6 staff to ensure all testing and permit requirements continue to be met. Increased use of effluent
7 recycle may impact current effluent recharge and reuse rates resulting in adverse impacts.

8 Adverse water resources impacts could also conceivably occur if personnel cuts prevented
9 environmental compliance from being implemented. The Army is committed, however, to
10 ensuring that personnel cuts will not result in non-compliance with water quality regulations.
11 Even if the full end-strength reductions were to be realized at Fort Huachuca, the Army would
12 ensure that adequate staffing remains so that mandated environmental requirements would
13 continue to be met and implemented. Increased force reduction at Fort Huachuca under
14 Alternative 1 is not anticipated to cause violations of federal and state water quality regulations.

15 **4.11.11 Facilities**

16 **4.11.11.1 Affected Environment**

17 Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598
18 acres). The East Reservation includes the East Range, which consists almost entirely of
19 open/operational areas. The West Reservation includes the West Range, South Range,
20 cantonment area, and Libby AAF. The majority of the buildings and facilities located on Fort
21 Huachuca are within the cantonment area. These facilities and associated personnel provide the
22 functions required to operate and maintain the installation, including wastewater treatment, solid
23 waste management, transportation networks and infrastructure, installation access points, power
24 distribution, fuel distribution, and hazardous waste management. Military barracks,
25 bachelor/guest quarters, transient billeting, and Family housing as well as associated support
26 facilities, including dining, health care, and other services, are also located within the
27 cantonment area (U.S. Army, 2010).

28 Libby AAF is located in the northernmost corner of the cantonment area and is used for aviation-
29 related training. Support facilities include a flight control tower, navigational aids building,
30 airfield operations building, and an airfield fire and rescue station. Maintenance facilities and the
31 city of Sierra Vista Municipal Airport air terminals are located on the north side of the airfield.
32 Storage buildings are located along the southern side of the main runway and within the
33 operational land use zone (U.S. Army, 2010).

1 **4.11.11.2 Environmental Effects**

2 **No Action Alternative**

3 No impacts to facilities are anticipated under the No Action Alternative. Fort Huachuca would
4 continue to use its existing facilities to support its tenants and missions.

5 **Alternative 1—Implement Force Reductions**

6 Minor impacts to facilities are anticipated as a result of implementation of force reductions under
7 Alternative 1. Personnel reductions associated with Alternative 1 would reduce requirements for
8 facilities and affect space utilization across the installation. Construction or expansion projects
9 that had been programmed in the future may not occur or could be downscoped. Occupants of
10 older, underutilized, or excess facilities may be moved to newer facilities; in some cases, this
11 could require modification of existing facilities. Some beneficial impacts are also expected as a
12 result of force reductions such as a reduction in the frequency of training exercises would be
13 beneficial for maintaining ranges and training areas and thereby improving sustainability of those
14 facilities. As discussed in Chapter 1, the demolition of existing buildings or placing them in
15 caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part of
16 the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

17 **4.11.12 Socioeconomics**

18 **4.11.12.1 Affected Environment**

19 Fort Huachuca is part of the city of Sierra Vista, located in Cochise County in southeastern
20 Arizona. Sierra Vista is the major population center of the region with a population of 46,351 in
21 2012. An additional estimated 14,348 live in the unincorporated area just to the east and south of
22 the City. Sierra Vista occupies an area of 139 square miles, including the 119 square miles within
23 the boundaries of Fort Huachuca. Huachuca City, a town of 1,751, is located immediately north
24 of Fort Huachuca. The ROI includes Cochise County, Arizona, which includes Fort Huachuca
25 and is where the majority of Fort Huachuca's Soldiers, Army civilians, and contractor personnel
26 and their Families reside.

27 The major units assigned to Fort Huachuca include the Army Network Enterprise Technology
28 Command, the 111th Military Intelligence Brigade, the U.S. Army Intelligence Center of
29 Excellence, and the headquarters for the Army Military Affiliate Radio System. Other tenant
30 units include the Electronic Proving Ground and the Joint Interoperability Test Command as well
31 as the Army Network Enterprise Technology Command. There are currently 17 units stationed at
32 Fort Huachuca.

33 **Population and Demographics**

34 Using 2013 as a baseline, Fort Huachuca has a total working population of 17,739 consisting of
35 active component Soldiers and Army civilians, students and trainees, other military services,

1 civilians and contractors. Of the total working population, 5,841 were permanent party Soldiers
 2 and Army civilians. The population that lives on Fort Huachuca consists of 1,110 Soldiers and
 3 their 1,685 Family members, for a total on-installation resident population of 2,795 (Loucks-
 4 Spivey, 2014). The portion of the Soldiers and Army civilian population living off the
 5 installation is estimated to be 11,913 and consist of Soldiers, Army civilians, and their Families.

6 Fort Huachuca is home to the U.S. Army Intelligence Center of Excellence and provides
 7 Intelligence and Unmanned Aircraft Systems Operation training for Soldiers and others. Students
 8 are based at Fort Huachuca for the expected length of their assigned curriculum which may range
 9 from 1 to 33 weeks, depending on the course the student is taking. The shortest course is the Unit
 10 Commanders course for 1 week, and the longest is the Gray Eagle Operator Course for a
 11 duration of 33 weeks. Fort Huachuca averages approximately 4,100 students assigned for
 12 training. The average daily student load for 2013 was 2,339, which comprised approximately 90
 13 to 95 percent of students living on the installation in barracks or billeting. The remaining
 14 students would be accommodated in local lodging facilities or rental units.

15 In 2012, the population of the ROI was 131,735. Compared to 2010, the 2012 population in
 16 Cochise County increased slightly, by 0.3 percent (Table 4.11-4). The racial and ethnic
 17 composition of the ROI is presented in Table 4.11-5 (U.S. Census Bureau, 2012a).

18 **Table 4.11-4. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Cochise County, Arizona	131,735	+0.30

19 **Table 4.11-5. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Arizona	84.3	4.5	5.3	3.1	2.5	30.2	57.1
Cochise County, Arizona	88.0	4.8	1.7	2.1	3.1	33.1	57.5

20 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

21 **Employment and Income**

22 Compared to 2000, the 2012 total employed labor force (including civilian and military)
 23 increased in the state of Arizona and slightly decreased in Cochise County (U.S. Census Bureau
 24 2000 and 2012b). In 2012, the total employed labor force in the ROI was 47,333 (U.S. Census

1 Bureau, 2012b). Employment, median home value, and household income, and poverty levels
 2 are presented in Table 4.11-6.

3 **Table 4.11-6. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Arizona	2,753,287	+22.2	175,900	50,256	17.2
Cochise County, Arizona	47,333	-1.2	151,800	45,505	16.6

4 Information regarding the workforce by industry for Cochise County was obtained from the U.S.
 5 Census Bureau. Information presented below is for the employed labor force.

6 ***Cochise County***

7 According to the U.S. Census Bureau, the educational services, health care and social assistance
 8 sector accounts for the greatest share of total workforce in Cochise County (20 percent). Public
 9 administration is the second largest employment sector (16 percent), followed by professional,
 10 scientific, management, administrative, and waste management services (13 percent). The Armed
 11 Forces account for 4 percent of the county’s workforce. The remaining 10 industries employ 51
 12 of the total workforce.

13 Major employers in Cochise County include Fort Huachuca, Cochise County, and General
 14 Dynamics Information Technology (SEAGO, 2014).

15 **Housing**

16 There are several housing options for residents of Fort Huachuca. Subject to availability,
 17 personnel may live on the installation, or either they may rent or purchase housing off the
 18 installation. Fort Huachuca currently has 3,991 permanent party and student residents in housing
 19 and 1,132 homes on the installation (Loucks-Spivey, 2014).

20 **Schools**

21 Two school systems accommodate students from Fort Huachuca: Fort Huachuca
 22 Accommodation School and the Unified School District located in Sierra Vista. Students in
 23 kindergarten through grade 8 attend school in the Fort Huachuca District through the Fort
 24 Huachuca Accommodation School District. The Fort Huachuca Accommodation School District
 25 is an Arizona Public School, but it lies within Fort Huachuca and has coterminous boundaries
 26 with Fort Huachuca. There is no tax base or voting public, and the school district relies on
 27 Federal Impact Aid funding and State Equalization funding. Three elementary schools and a
 28 middle school are in the district (Nieto, 2014).

1 In the Fort Huachuca Accommodation School District, a special needs preschool serves students;
2 one school serves students through grade 2; one school serves students in grade 3 through
3 grade 5; and a middle school serves students in grade 6 through grade 8. High school students
4 from the installation attend Buena High School, which is a part of the Sierra Vista Public School
5 District (Nieto, 2014).

6 Fort Huachuca Accommodation School District enrollment for students attending school that live
7 on the installation is around 960 students, and the district has total enrollment of 1,063 students.
8 Children of active component Soldiers who live off the installation are allowed to attend Fort
9 Huachuca Accommodation School District, dependent on availability, through the enrollment
10 process in Arizona. The Buena High School enrollment of students living on the installation is
11 144. There are typically about 65 students living on the installation that are homeschooled. In
12 total, there are 1,104 students living on the installation, 87 percent attend Fort Huachuca
13 Accommodation School District, and 13 percent attend Sierra Vista Public School District
14 (Nieto, 2014).

15 **Public Health and Safety**

16 ***Police Services***

17 The Physical Security Branch of the DES supports the Fort Huachuca community by providing
18 the following services, physical security (assures high standards are being maintained for
19 securing and maintaining the well-being of Army materials and other property), vehicle
20 registration (maintains high level of security to ensure only authorized personnel gain access),
21 and work order processing (U.S. Army, 2014a).

22 ***Fire and Emergency Services***

23 The Sierra Vista Fire Department has three stations and responds to emergency medical service
24 calls in and around the city of Sierra Vista. The department is composed of 100 percent certified
25 emergency medical technicians and paramedics that are also cross trained in firefighting. The
26 Fire Department responds to fire, medical, technical rescue, metropolitan medical, and hazardous
27 materials emergencies (Sierra Vista, 2014).

28 ***Medical Facilities***

29 There are three medical facilities at Fort Huachuca. The main facility is Raymond W. Bliss
30 Health Center, which operates as a clinic and does not allow overnight patients. The services
31 provided include pharmacy, optometry, and x-ray technicians and services. There are two
32 smaller clinics on the base, the Soldier Care Clinic and the Military Intelligence Student Clinic.
33 The Soldier Care Clinic is for permanent party Soldiers only and the Military Intelligence
34 Student Clinic serves the initial entry Soldiers enrolled in military intelligence training. Military
35 personnel who require overnight medical care must go to nearby hospitals located off the
36 installation (Lopez, 2014).

1 There is one dental clinic on the base under Raymond W. Bliss Health Center called Runion
2 Dental Clinic. This is an army dental clinic that operates separately under its own command.

3 **Family Support Services**

4 Fort Huachuca assists Soldiers and their Families with programs that include Information,
5 Referral, and Follow-up (providing information regarding military and civilian community
6 resources), Army Emergency Relief, Army Family Action Plan, Army Family Team Building, a
7 Soldier and Family Assistance Center, Financial Readiness Program, Employment Readiness
8 Program, Exceptional Family Member Program (a mandatory enrollment program assisting
9 families with special needs), Family Advocacy Program (new parents support program, parent-
10 tot play group, and victim advocate group), Mobilization and Deployment Readiness, and a
11 Relocation Readiness Program (Fort Huachuca FMWR, 2014).

12 **Recreation Facilities**

13 Fort Huachuca provides its military community, families, and civilians with an arts and crafts
14 center (offering classes for all ages), a bowling center (with summer and winter leagues), riding
15 stables, an activity center (can be rented out by the hour and has a capacity of up to 500 people),
16 an 18-hole golf course, a car center, a sportsman center (offering ranges for skeet, trap, and
17 paintball Wednesdays through Sundays), and a sports facility (fitness and aquatics facilities and
18 fitness classes and programs) (Fort Huachuca FMWR, 2014).

19 **4.11.12.2 Environmental Effects**

20 **No Action Alternative**

21 Fort Huachuca's continuing operations represent a beneficial source of regional economic
22 activity. No additional impacts to population, housing, public and social services, public schools,
23 public safety, or recreational activities are anticipated.

24 **Alternative 1—Implement Force Reductions**

25 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
26 significant impact to socioeconomic resources. The description of impacts to the various
27 components of socioeconomics is presented below.

28 ***Population and Economic Impacts***

29 Alternative 1 would result in the loss of 2,739¹⁶ Army positions (1,726 Soldiers and 1,013 Army
30 civilians), each with an average annual income of \$46,760 and \$72,341, respectively. In addition,
31 this alternative would affect an estimated 4,158 Family members (1,529 spouses and 2,629

¹⁶ This number was derived by assuming the loss of 70 percent of Fort Huachuca's Soldiers and 30 percent of the Army civilians.

1 children). The total number of military employees and their Family members who may be
 2 directly affected by the Alternative 1 is projected to be 6,897.

3 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 4 forecasted economic impact value falls outside the historical positive or negative ranges. Table
 5 4.11-7 shows the deviation from the historical average that would represent a significant change
 6 for each parameter. The last row summarizes the deviation from the historical average for the
 7 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 8 by the EIFS model. Based on the EIFS analysis, changes in population and employment in the
 9 ROI fall outside the historical range and are categorized as a significant impact. However, there
 10 would not be a significant impact to income or sales because the estimated percentage change is
 11 within the historical range.

12 **Table 4.11-7. Economic Impact Forecast System and Rational Threshold Value**
 13 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	9.9	6.7	4.8	3.9
Economic contraction significance value	-12.5	-5.3	-4.4	-1.1
Forecast value	-5.1	-4.1	-7.3	-3.4

14 Table 4.11-8 summarizes the predicted impacts to income, employment, and population of the
 15 reductions against the 2012 demographic and economic data. Whereas the forecast value
 16 provides a percent change from the historical average, the percentages in the following table
 17 show the economic impact as a percent of 2012 demographic and economic data. Although not
 18 in exact agreement with the EIFS forecast values, these figures show the same significance
 19 determinations as the EIFS predictions in the previous table.

20 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 21 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 22 cumulative force reductions. Because of the maximum potential loss of 2,739 Army Soldiers and
 23 civilians under Alternative 1, EIFS estimates an additional 513 direct contract service jobs would
 24 also be lost. An additional 568 induced jobs would be lost because of the reduction in demand
 25 for goods and services within the ROI. Total reduction in employment is estimated to be 3,820, a
 26 significant reduction of 8.1 percent of the total employed labor force in the ROI of 47,333.
 27 Income is estimated to reduce by \$193.5 million, a 4.1 percent decrease in income in 2012.

1 **Table 4.11-8. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$193,491,500	-3,252 (Direct)	-6,897
		-568 (Induced)	
		-3,820 (Total)	
Total 2012 ROI economic estimates	\$4,837,759,000	47,333	131,735
Percent reduction of 2012 figures	-4.1	-8.1	-5.2

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$209 million.
 6 There would also be a loss in sales tax receipts to local and state governments. The average state
 7 and local sales tax rate for Arizona is 8.2 percent (Tax Foundation, 2014). To estimate sales tax
 8 reductions, information was utilized on the proportion of sales that would be subject to sales
 9 taxes on average across the country. According to the U.S. Economic Census an estimated 16
 10 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage
 11 and applicable tax rate was applied to the estimated decrease in sales of \$208.9 million resulting
 12 in an estimated sales tax receipts decrease of \$2.7 million under Alternative 1.

13 Of the approximately 131,735 people (including those residing on Fort Huachuca) who live
 14 within the ROI, 6,897 Army employees and their Family members are predicted to no longer
 15 reside in the area under Alternative 1, resulting in a significant population reduction of 5.2
 16 percent. This number could overstate potential population impacts because some of the people no
 17 longer employed by the military could continue to live and work within the ROI, finding
 18 employment in other industry sectors. However, due to the rural nature of the area and Fort
 19 Huachuca as a dominant employer and economic driver of the ROI, most displaced employees
 20 would likely move out of the area to seek other opportunities. There are few employing sectors
 21 in the ROI to absorb displaced military employees. A small number of displaced forces may stay
 22 in the ROI and seek work; finding work and others may remain unemployed and possibly affect
 23 the unemployment rate in the ROI.

24 Additionally, students and trainees on Fort Huachuca may have a substantial impact on the local
 25 economy through lodging, eating, and shopping expenditures. Additionally, formal graduation
 26 ceremonies generate demand for lodging and dining facilities when Family members attend. The
 27 impact to Fort Huachuca's training missions cannot be determined until after the Army completes
 28 its force structure decisions; therefore, analyzing the impact to those missions is beyond the
 29 scope of this document.

1 **Housing**

2 The population reduction under Alternative 1 would lead to a decreased demand for housing and
3 increase housing availability on the installation and in the region, potentially leading to a
4 reduction in median home values. With an expected decrease in population within the ROI of
5 5 percent along with the vast majority of the Army personnel and Family members living off the
6 installation, housing impacts under Alternative 1 would be adverse and could range from minor
7 to significant.

8 **Schools**

9 Reduction of 2,700 Army personnel would decrease the number of children by 2,629 in the ROI.
10 It is anticipated that school districts that provide education to Army children on the installation
11 would be impacted by this action. Fort Huachuca Accommodation School District, located on the
12 installation, would be most affected by these decreases in enrollment as it provides education for
13 Army children on and off the installation. The Sierra Vista Public School District would also
14 have a decreased number of military-dependent students attending their schools. If enrollment in
15 individual schools declines significantly, schools may need to reduce the number of teachers,
16 administrators, and other staff, and potentially close or consolidate with other schools within the
17 same school district should enrollment fall below sustainable levels.

18 The reduction of Soldiers on Fort Huachuca would result in a loss of Federal Impact Aid dollars
19 in the ROI. The amount of Federal Impact Aid a district receives is based on the number of
20 students who are considered “federally connected” and attend district schools. Actual projected
21 dollar amounts cannot be determined at this time due to the variability of appropriated dollars
22 from year to year, and the uncertainty regarding the actual number of affected school-age
23 children. School districts in the ROI would likely need fewer teachers and materials as
24 enrollment drops, which would offset some of the reduced Federal Impact Aid. Overall, adverse
25 impacts to schools associated with Alternative 1 would be minor to significant, depending on the
26 number of military-connected students attending schools.

27 **Public Services**

28 The demand for law enforcement, medical care providers, and fire and emergency service
29 providers on the installation would experience a decrease in demand should Army military and
30 civilians, and their Family members, affected by Alternative 1 move to areas outside the ROI.
31 Adverse impacts to public services could conceivably occur if personnel cuts were to
32 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
33 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
34 any drawdown in military or civilian personnel, the Army is committed to meeting health and
35 safety requirements. Overall, there would be minor, adverse impacts to public health and safety
36 as a result of Alternative 1. The impacts to public services are not expected to be significant
37 because the existing service level for the installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur as a result of Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have disproportionate adverse impacts to minorities, economically disadvantaged populations or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI. Minority and poverty populations in the ROI are proportionally very similar to those in the state as a whole, so there would not be disproportionate impacts to environmental justice populations.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.11.13 Energy Demand and Generation

4.11.13.1 Affected Environment

Fort Huachuca’s energy needs are currently met by a combination of electric power and natural gas. Fort Huachuca strives to minimize environmental impacts and total ownership costs by reducing consumption of energy from outside sources through the integration of the principles and practices of sustainability. Fort Huachuca addresses energy security, federal mandates, and

1 mitigation of rising energy costs through the expanded use of renewable energy resources.
2 Existing renewable energy systems located on Fort Huachuca include solar hot water heaters,
3 photovoltaic flat panels and combined integrated systems, daylighting, photovoltaic parking lot
4 lighting, solar walls, a methane digester processor, a biofuel burner, geothermal heat pumps at
5 new barracks, a 10-kilowatt wind tower, and a 1-megawatt wind turbine (U.S. Army, 2014b).
6 The Army has also recently initiated the development of a 20-megawatt solar array at
7 Fort Huachuca.

8 **Electricity**

9 Tucson Electric Power and Sulphur Springs Valley Electric Cooperative supply electrical power
10 to Sierra Vista, Fort Huachuca, and the surrounding area. The installation is served by six
11 underground distribution circuits, which transfer to overhead poles. The existing distribution
12 system adequately supports the current and future needs of the installation (U.S. Army, 2010b).

13 **Natural Gas**

14 Southwest Gas provides natural gas to the installation via two 400 pounds-per-square-inch
15 supply lines. The system capacity is reported to be adequate to support current and future
16 demands (U.S. Army, 2010b).

17 **4.11.13.2 Environmental Effects**

18 **No Action Alternative**

19 Under the No Action Alternative, there would be minor, adverse impacts to energy demand. The
20 continued use of outdated, energy-inefficient facilities could hinder Fort Huachuca's requirement
21 to reduce energy consumption. Some older facilities may require renovations to improve energy
22 efficiency to achieve Fort Huachuca's sustainability and energy goals.

23 **Alternative 1—Implement Force Reductions**

24 Minor, beneficial impacts to energy demand are anticipated because force reductions would
25 reduce the installation's overall demand for energy. The installation would also be better
26 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
27 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
28 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
29 these activities on energy demand are not analyzed.

1 **4.11.14 Land Use Conflicts and Compatibility**

2 **4.11.14.1 Affected Environment**

3 **Regional Setting**

4 Fort Huachuca encompasses 73,142 acres of land located in the city of Sierra Vista, Cochise
5 County, Arizona. The installation is located in the San Pedro River Valley, approximately 75
6 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. Other communities in the
7 region include Benson (31 miles north), Tombstone (18 miles east), Bisbee (28 miles southeast),
8 and Douglas (60 miles southeast). The southernmost boundary of the installation is
9 approximately 8 miles from the international border with Mexico. Fort Huachuca is divided into
10 an East Reservation (28,544 acres) and West Reservation (44,598 acres) by Arizona State
11 Highway 90. The East Reservation includes the East Range, which consists almost entirely of
12 open/operational areas. The West Reservation includes the West Range, South Range,
13 Cantonment Area, and Libby AAF (U.S. Army, 2010a). The electromagnetic environment that
14 surrounds Fort Huachuca is an unparalleled asset for the testing and training operations carried
15 out under a wide variety of missions. This area is one of the only U.S. locations where regional
16 electronic equipment testing can be effectively conducted, and is the only test range with a
17 frequency coordination zone protected by federal mandate (Arizona Department of Commerce,
18 2007). The 2008 law providing protection for the test range and range activity also designated
19 the area as the Buffalo Soldier Electronic Test Range. The name "Buffalo Soldier" honors
20 African American cavalry and infantry regiments that were stationed at Fort Huachuca beginning
21 in 1892 (Pima County, 2010).

22 The receiving and transmitting points involved in operations within the Buffalo Soldier
23 Electronic range extend well beyond the boundaries of Fort Huachuca and the range
24 encompasses the entire city of Sierra Vista as well as the communities of Huachuca City,
25 Tombstone, and Benson. While most points are located within 50 kilometers of the installation
26 boundary, some operations extend to the Tucson area and beyond (Arizona Department of
27 Commerce, 2007).

28 The installation primarily supports the U.S. Army Training and Doctrine Command and is home
29 to many tenants, including the Network Enterprise Technology Command, National Unmanned
30 Aerial Vehicle Training Center, U.S. Army Intelligence Center and School of Excellence, U.S.
31 Army Electronic Proving Ground, Joint Interoperability Test Command, Intelligence Electronic
32 Warfare Test Directorate, U.S. Army Communications Electronic Command, and many other
33 smaller tenant organizations. The majority of operational testing and training at Fort Huachuca is
34 related to intelligence, electronic warfare, and communications systems. Units are engaged in the
35 development and testing of various types of electronics. These units are also involved in training
36 Soldiers in the use of this equipment in classrooms and during field training exercises. Fort

1 Huachuca is also used for field training exercises by various operational units and other DoD and
2 non-DoD agencies (U.S. Army, 2010a).

3 **Land Use on Fort Huachuca**

4 Fort Huachuca is divided into an East Reservation (28,544 acres) and West Reservation (44,598
5 acres) by Highway 90. Land uses are generally classified as either open/operational or developed
6 areas. The East Reservation includes the East Range, which consists almost entirely of
7 open/operational areas. The West Reservation includes the West Range, South Range,
8 cantonment area, and Libby AAF. The open/operational areas on the West and East Reservations
9 are used as training and test ranges and are comprised of 67,422 acres or approximately 92
10 percent of the installation. The developed areas on the installation include the cantonment area
11 and Libby AAF. These areas occupy 5,720 acres, or approximately 8 percent of the installation.
12 Both are located on the eastern edge of the West Reservation (U.S. Army, 2010a).

13 The West Range is located on the West Reservation, west of the cantonment area, and covers
14 approximately 16,000 acres of land. There are no live-fire training areas on this range, and at
15 specified times, the range is used for training, research, development, and testing. Training Area
16 Juliet, in the northwest corner of the West Range, is used by the Intelligence School for training
17 related to UAS. U.S. Army Electronic Proving Ground also performs research and development
18 testing in this area. The takeoff and landing of UAS from a supporting facility is one of the
19 activities conducted on the West Range. Site Maverick, located in Training Area Lima, and the
20 land navigation course, located in Training Area Mike are permanent training areas on the West
21 Range. The South Range is located on the West Reservation, south of the cantonment area. It
22 covers approximately 23,000 acres, including most of the installation's portion of the Huachuca
23 Mountains. The eastern slopes of the mountains on the southern portion of the installation are
24 used, in part, as impact areas for the small arms firing positions located in the flat terrain of the
25 eastern portion of the range. Training and some testing occur in the northern portion of the
26 mountains. The range is divided into 12 training areas, 9 firing ranges, and several impact areas.
27 Permanent training areas on the South Range include Sites Papa and Uniform and two land
28 navigation courses located in Training Area Uniform (U.S. Army, 2010a).

29 **Surrounding Land Use**

30 Lands surrounding Fort Huachuca are directly affected by Cochise County, Santa Cruz County,
31 and the city of Sierra Vista's land use restrictions. The Cochise County Comprehensive Plan
32 (Cochise County, 2011) and zoning districts direct the land use throughout the unincorporated
33 areas of Cochise County. The Cochise County land adjacent to the installation consists primarily
34 of privately owned and State Trust lands (Arizona Department of Commerce, 2007). Growth
35 areas are identified southeast of the installation; south of Sierra Vista; north of the East Range.
36 Land uses within Sierra Vista adjacent to Fort Huachuca are predominantly residential, with
37 higher densities occurring in the northern part of the city and lower densities along the south and

1 northeast edges of the city where it occurs south of the East Range of Fort Huachuca
2 (U.S. Army, 2010a).

3 A large portion of land adjacent to the installation falls under the jurisdiction of the Bureau of
4 Land Management Tucson Field Office and the USFS Coronado National Forest (U.S. Army,
5 2010a). USFS lands comprise the majority of lands within Santa Cruz County that lie adjacent to
6 the installation (Santa Cruz County, 2013). These lands are undeveloped and could be expected
7 to remain so for the foreseeable future. Management of these lands is directed under those
8 agencies' resource management plans.

9 A JLUS was developed through a collaborative effort between Fort Huachuca, local
10 municipalities, community groups and other stakeholders and was finalized in June 2007. The
11 purpose of the JLUS is to facilitate the implementation of compatible land uses in the areas
12 critical to the mission and operation of the installation. The JLUS identified operations occurring
13 at the installation that extend beyond the boundaries of the fort and into the surrounding
14 communities, including uses of the restricted airspace and the electromagnetic environment that
15 surrounds the installation (Arizona Department of Commerce, 2007).

16 The limited amount of developed land that surrounds Fort Huachuca provides an electromagnetic
17 environment that is an unparalleled asset for testing and training operations carried out on the
18 installation. It is the only U.S. location where aggressive, offensive electronic warfare testing can
19 be conducted and that has a frequency coordination zone protected by federal mandate (Arizona
20 Department of Commerce, 2007). Increasing local growth throughout the region creates the
21 potential for conflicts between installation operations and adjacent uses, and threatens to affect
22 installation military training and deployment capabilities. Fort Huachuca works through the
23 ACUB program to reduce the potential for incompatible land use adjacent to the installation by
24 aggressively pursuing conservation easement opportunities on agricultural and undeveloped
25 lands adjacent to the installation. By establishing easements, the installation is able to limit its
26 impacts to surrounding uses and minimize the incompatible development of electromagnetic
27 background noise that could adversely impact electromagnetic training and testing activities
28 (U.S. Army, 2010a; Arizona Department of Commerce, 2007).

29 **4.11.14.2 Environmental Effects**

30 **No Action Alternative**

31 Under the No Action Alternative, existing uses and mission activities would not change from
32 existing conditions. Land uses at Fort Huachuca would remain generally compatible with one
33 another and with ongoing testing and training activities. Regional growth is expected to continue,
34 and related incompatible development and uses would potentially compromise mission activities.
35 Fort Huachuca would continue to be required to identify and abate potential incompatible
36 development and use threats through the acquisition of conservation easement buffers, which

1 would constrain development adjacent to the installation. Impacts to land use from the No Action
2 Alternative would, therefore, be minor.

3 **Alternative 1—Implement Force Reductions**

4 Alternative 1 would entail force reductions and associated decreased levels of existing mission
5 activities. Compatibility among land uses and mission activities would not change. Potential
6 incompatibilities associated with regional growth and development would continue to exist under
7 Alternative 1. The proposed force reductions would not affect or change the requirement to
8 identify potential incompatible development or use threats and provide mitigation through the
9 acquisition of buffer easements. All acquired conservation easements would restrict or eliminate
10 future development to protect the integrity of installation mission activities. Similar to the No
11 Action Alternative, impacts to land use from Alternative 1 would be minor.

12 **4.11.15 Hazardous Materials and Hazardous Waste**

13 **4.11.15.1 Affected Environment**

14 **Hazardous Materials**

15 Fort Huachuca manages hazardous substances and hazardous materials in compliance with state
16 and federal regulatory programs. These include fuels, antifreeze, paints, cleaners, petroleum, oil
17 and lubricants. Fort Huachuca has an active environmental program that maintains compliance
18 specific to each of these hazardous materials.

19 **Hazardous Waste Treatment, Storage and Disposal**

20 Fort Huachuca is a RCRA, large-quantity generator of hazardous waste. Downgraded hazardous
21 material and vehicle/aircraft maintenance produce the majority of hazardous wastes generated by
22 the installation, and facility maintenance may also contribute. Hazardous substances typically
23 associated with these operations, such as fuels, antifreeze, paints, cleaners, petroleum products
24 and lubricants, are stored, transported, and disposed of in accordance with applicable federal and
25 state of Arizona laws and regulations. The HWMP at Fort Huachuca complies with Occupational
26 Safety and Health Administration hazardous communications standards and USACE Safety and
27 Health requirements Manual EM 385-1-1; the ISC Plan; the installation HWMP; and U.S.
28 Department of Transportation regulations (U.S. Army, 2010b).

29 Fort Huachuca operates one 90-day accumulation center, approximately 200 satellite
30 accumulation centers, regulated waste satellite accumulation sites (petroleum, oil, lubricants and
31 hazardous, universal, toxic, and industrial waste), and a Hazardous Material Control Center,
32 which allows for collection and withdrawal of usable hazardous materials on the installation.
33 Frequent inspections of hazardous waste storage and disposal sites are conducted by the DPW
34 Environmental Office and state and federal regulatory agencies. The Defense Logistics Agency -

1 Disposal provides contract service to transport and dispose of regulated waste off the installation
2 (U.S. Army, 2010b).

3 **Hazardous Waste Investigation and Remediation Sites**

4 Historically, there have been 58 IRP sites at Fort Huachuca. The 2009 Fort Huachuca IAP
5 identifies two remaining IRP sites in long-term management and two sites pending a No Further
6 Action determination from Arizona DEQ (U.S. Army, 2010b).

7 **Other Hazards**

8 Other hazards present at Fort Huachuca are controlled, managed, and removed through specific
9 programs and plans and include UXO, LBP, asbestos, and pesticides.

10 **4.11.15.2 Environmental Effects**

11 **No Action Alternative**

12 Minor, adverse impacts are anticipated under the No Action Alternative because there would be
13 continued use and generation of hazardous materials and wastes on Fort Huachuca. The existing
14 types and quantities of hazardous wastes generated on the installation have been accommodated
15 by the existing hazardous waste management system, and all materials and waste would continue
16 to be handled in accordance with all applicable laws, regulations, and plans minimizing
17 potential impacts.

18 **Alternative 1—Implement Force Reductions**

19 Minor, adverse impacts are anticipated under Alternative 1. Remediation activities are not
20 expected to be affected under Alternative 1. Because of the reduced numbers of people, the
21 potential for spills would be somewhat reduced during training and maintenance activities.
22 Waste collection, storage, and disposal processes would remain mostly unchanged, although the
23 quantities may be reduced.

24 No violation of hazardous waste regulations is anticipated as a result of active forces reduction.
25 Volumes of generated waste are expected to decline depending on the specific units affected.

26 Adverse impacts could conceivably occur if force reductions prevented environmental
27 compliance from being implemented. The Army is committed to ensuring that personnel cuts
28 will not result in non-compliance with regulations governing the handling, management,
29 disposal, and clean up, as appropriate, of hazardous materials and hazardous waste. Even if the
30 full end-strength reductions were to be realized at Fort Huachuca, the Army would ensure that
31 adequate staffing remains so that the installation would comply with all mandatory
32 environmental regulations.

1 Hazardous materials and wastes would continue to be handled per BMPs that are implemented in
2 compliance with appropriate regulations and as per Fort Huachuca's HWMP. It is expected that
3 the volume of regulated waste generated would experience an initial increase; followed with a
4 possible decline dependent on the specific units affected. The installation would minimize any
5 adverse impacts related to hazardous materials and waste resulting under Alternative 1.

6 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
7 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
8 therefore, potential impacts from these activities are not analyzed.

9 **4.11.16 Traffic and Transportation**

10 **4.11.16.1 Affected Environment**

11 The main highway access to Fort Huachuca is Arizona State Highway 90, which divides the
12 installation into the East and West Reservations. The Main Gate is located immediately west of
13 Highway 90, at the end of Fry Boulevard, which is a commercial roadway that runs through the
14 city of Sierra Vista. The Main Gate is the most heavily used access gate on the installation (U.S.
15 Army, 2010b; U.S. Army, 2008). The 2005 Northwest Cochise County Transportation Planning
16 Study states that Highway 90 is operating at the highest LOS, essentially free-flow traffic
17 throughout the day, designated (LOS A). Further, this report states that Highway 90 will reach
18 LOS C, indicating occasional congestion and delays, when traffic counts reach a daily capacity
19 of 24,400 vehicles. Traffic is expected to reach LOS D, with recurrent congestion and delays
20 during peak hours exacerbated by traffic incidents at 30,600 vehicles (U.S. Army 2010b; Cochise
21 County, 2005). More vehicles than 30,600 under current configurations will result in traffic that
22 exceeds acceptable standards or is failing. This plan is in the process of being updated.
23 Preliminary materials from the planning process state that Highway 90 is continuing to operate at
24 a high level. Traffic counts along Highway 90 in the vicinity of the Main Gate have shown an
25 increase in vehicles between 2006 and 2008, with an annual average daily traffic count of 14,988
26 vehicles in 2006, 16,175 vehicles in 2007, and 16,369 vehicles in 2008. These counts are well
27 below the LOS D threshold (U.S. Army, 2010b). The counts for 2012 at the same location (count
28 station 101084, Milepost 322) were 20,509, continuing the upward trend but still lower than the
29 LOS D threshold (Arizona DOT, 2014).

30 There are two other gates providing access to the installation, the East and West Gates. The East
31 Gate and its control point are currently located east of the intersection of Brainard Road and
32 Carter Street, resulting in the closure of both Brainard Road and Carter Street. The West Gate is
33 located near the Blacktower area of the installation's West Range. The West Gate provides
34 access to individuals who live west of the installation, so they need not drive approximately 30
35 minutes around the installation to use the Main or East gates. A North Gate also exists on the
36 installation but is not functional and is not currently in use (U.S. Army, 2010b).

1 The existing road network on Fort Huachuca provides access to all operational and residential
2 areas on the installation. There is approximately 200 miles of paved roadways, 130 miles of
3 gravel roads, and 150 miles of firebreak roads and trails located on the installation. The overall
4 condition of the roadway system is good and adequately serves approximately 15,405 people
5 currently living and/or working on the installation. Traffic studies have shown that traffic
6 volumes are greatest during two, hour-long periods in the morning and evening as people report
7 to and from work, with peak hours occurring between 6:45 a.m. and 7:45 a.m. and 4:00 p.m. and
8 5:00 p.m. A third peak travel time occurs around 12:00 p.m. as a result of lunch hour traffic.
9 Overall, the installation has little to no congestion and minimal delays (U.S. Army, 2010b;
10 U.S. Army, 2008).

11 Primary roads are the main routes that connect the cantonment area with the off-installation
12 transportation network and provide access between different land uses on the installation. The
13 primary roads carry the highest traffic volumes and often allow for higher travel speeds. Primary
14 roads within the installation include Allison Road, Hatfield Street, Lawton Road, Smith Avenue,
15 Squire Avenue and Winrow Avenue. Winrow Avenue provides the main access to and from the
16 Main Gate. Installation traffic is controlled at intersections using a variety of means, including
17 traffic circles, stop signs, and traffic signals (U.S. Army, 2010b; U.S. Army, 2008).

18 Roads serving the training areas within the three ranges are mostly unpaved, and in some cases
19 are severely eroded.

20 Airfield activities primarily occur at Libby AAF, which includes a 12,000-foot-long runway,
21 providing service to Fort Huachuca and the city of Sierra Vista Municipal Airport. Other airfield
22 activities occur on the range and training lands outside the cantonment area and include
23 operations at Hubbard landing strip on the East Range, Rugge-Hamilton and Pioneer landing
24 strips on the West Range, and more than a dozen helipads throughout the installation (U.S.
25 Army, 2010b; U.S. Army, 2008).

26 No rail service to Fort Huachuca is available. The closest rail service is located in Benson,
27 Arizona, which is approximately 30 miles north of the installation. The city of Sierra Vista
28 Public Transit System provides daily bus transportation to the public, with stops located
29 throughout Fort Huachuca and the city of Sierra Vista (U.S. Army, 2010b; U.S. Army, 2008).

30 Military vehicles use a combination of public roads, installation roads, and military vehicle trails.
31 Vehicle convoys using public roads typically are limited to no more than 24 vehicles in a group.
32 Vehicles within a convoy group (also called convoy serials) usually are spaced about 165 to 330
33 feet and at least 15 to 30 minutes apart. These convoy procedures reduce noise levels and prevent
34 the convoy vehicles from dominating local traffic flow for long periods of time (U.S. Army,
35 2010b; U.S. Army, 2008).

1 **4.11.16.2 Environmental Effects**

2 **No Action Alternative**

3 The No Action Alternative would result in traffic and transportation congestion continuing at
4 current levels on and off the installation. Traffic congestion on and off the installation has not
5 been cited as a concern in the documents reviewed and referenced for this analysis. There would
6 be no impacts to transportation.

7 **Alternative 1—Implement Force Reductions**

8 Reduction in personnel would provide a slightly beneficial impact to traffic both on and off the
9 installation. Traffic congestion has not been cited as a problem at Fort Huachuca. If the full
10 population reduction scenario of 2,700 personnel were to be implemented, the 46 percent
11 reduction in personnel would present a noticeable decline in traffic both on and off
12 the installation.

13 **4.11.17 Cumulative Effects**

14 The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Huachuca
15 consists of Cochise County in Arizona. No planned or proposed actions within the ROI that
16 would have the potential to cumulatively add impacts to Army 2020 alternatives were identified
17 by the installation.

18 **Reasonably Foreseeable Future Projects on Fort Huachuca**

19 No additional actions were identified by the installation that could have cumulative impacts.

20 **Reasonably Foreseeable Future Projects outside Fort Huachuca**

21 The Army is not aware of any reasonably foreseeable future projects outside Fort Huachuca
22 which would be appropriate for inclusion in the cumulative impacts analysis. However, there are
23 other projects and actions that affect regional economic conditions and generally include
24 construction and development activities, infrastructure improvements, and business and
25 government projects and activities. Additionally, smaller, less diversified economies will be
26 more vulnerable to the force reductions and provide fewer opportunities to displaced
27 Army employees.

28 **No Action Alternative**

29 There would be no cumulative effects of the foreseeable future actions with the No Action
30 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
31 Alternative would not contribute to any changes.

1 **Alternative 1—Implement Force Reductions**

2 With the exception of socioeconomics, there would not likely be a significant, adverse
3 cumulative impact under Alternative 1. The socioeconomic impact within the ROI, as described
4 in Section 4.15.12.2 with a reduction of 2,739 Soldiers and civilians, could lead to significant
5 impacts to the population and employment, with minor, adverse impacts to income, schools, and
6 housing. Current and foreseeable actions include construction and development activities on and
7 off the installation, which would have beneficial impacts to the regional economy through
8 additional economic activity, jobs, and income in the ROI. Additionally, stationing changes
9 would also affect regional economic conditions through the jobs and income they bring (or lose)
10 within the region. Military personnel spend their money in the ROI economy, supporting
11 additional jobs, income, taxes, and sales impacts.

12 Fort Huachuca is located near the city of Sierra Vista; the ROI population is over 130,000. It is
13 possible that the ROI could absorb some of the displaced workers, depending on the economy
14 and labor market in the region. If the majority of the displaced forces are not absorbed into the
15 local labor force, there would be additional adverse impacts.

16 Fort Huachuca is home to the U.S. Army Intelligence Center of Excellence and provides
17 Intelligence and Unmanned Aircraft Systems Operation training for Soldiers and others. Fort
18 Huachuca averages approximately 4,100 students assigned for training. Cumulative actions could
19 include reduced training opportunities because of the force reductions on Fort Huachuca. This
20 could lead to further adverse impacts to socioeconomic conditions because of reduced temporary
21 population and visitors and the attendant economic activity, spending, and jobs and income they
22 support. Alternative 1 and the loss of approximately 2,700 Soldiers and Army civilians, in
23 combination with current and foreseeable future actions, could have significant impacts to
24 population employment, tax receipts, housing values, and schools in the ROI.

1 **4.12 Fort Irwin, California**

2 **4.12.1 Introduction**

3 Fort Irwin was analyzed in the 2013 PEA. Background information on the installation, including
 4 location, tenants, mission, and population, is discussed in Section 4.9.1 of the 2013 PEA.

5 Fort Irwin’s 2011 baseline permanent party population was 5,539. In this SPEA, Alternative 1
 6 assesses a potential population loss of 3,600, including approximately 3,260 permanent party
 7 Soldiers and 264 Army civilians.

8 **4.12.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental or socioeconomic impacts are anticipated for Fort Irwin.
 11 Table 4.12-1 summarizes the anticipated impacts to VECs under each alternative.

12 **Table 4.12-1. Fort Irwin Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Minor	Beneficial
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Less than Significant	Beneficial
Facilities	Minor	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Minor

13 **4.12.3 Air Quality**

14 **4.12.3.1 Affected Environment**

15 The air quality affected environment of the Fort Irwin ROI remains the same as described in
 16 Section 4.9.2.1 of the 2013 PEA. The Fort Irwin area is part of a nonattainment area for O₃ (1997

1 and 2008 standards) and coarse particulate matter (PM₁₀). The area is in attainment with NAAQS
2 for the remaining criteria pollutants (EPA, 2013).

3 **4.12.3.2 Environmental Effects**

4 **No Action Alternative**

5 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
6 emissions at current levels, as well as fugitive dust from training in a desert environment, would
7 result in minor, adverse impacts to air quality. Air quality impacts from the No Action
8 Alternative for this SPEA would remain the same as described in the 2013 PEA.

9 **Alternative 1—Implement Force Reductions**

10 The 2013 PEA concluded that, in the long term, force reductions at Fort Irwin would result in
11 minor, beneficial impacts to air quality because of reduced operations and maintenance activities
12 and reduced vehicle miles traveled associated with the facility. Impacts to air quality from the
13 increased force reductions proposed under Alternative 1 would continue to be beneficial
14 assuming a corresponding decrease in operations and vehicle travel to and from Fort Irwin. The
15 size of this beneficial impact under Alternative 1 would be slightly larger than assumed in the
16 2013 PEA.

17 The relocation of personnel outside of the area because of force reductions could result in
18 negligible, short-term effects on air quality associated with mobile sources. As discussed in
19 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
20 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
21 therefore, potential impacts from these activities on air quality are not analyzed.

22 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
23 quality regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the
24 Army would ensure that adequate staffing remains so that the installation would comply with all
25 mandatory environmental regulations.

26 **4.12.4 Airspace**

27 **4.12.4.1 Affected Environment**

28 The airspace affected environment on the Fort Irwin remains the same as was discussed in
29 Section 4.9.3.1 of the 2013 PEA.

30 **4.12.4.2 Environmental Effects**

31 **No Action Alternative**

32 Under the No Action Alternative, impacts to airspace would be similar to those described in the
33 2013 PEA (Section 4.9.3.2) with negligible impacts as a result of potential airspace conflicts

1 between military and civilian use. There would be no new or adjustments to existing airspace
2 classifications and restrictions.

3 **Alternative 1—Implement Force Reductions**

4 Under Alternative 1, impacts to airspace would be similar to those described in the 2013 PEA
5 (Section 4.9.3.2) with minor, beneficial impacts from a reduction in live-fire operations and
6 subsequently reduced potential airspace conflicts. The proposed further force reductions would
7 increase the beneficial impacts.

8 **4.12.5 Cultural Resources**

9 **4.12.5.1 Affected Environment**

10 The affected environment for cultural resources at Fort Irwin has not changed since 2013, as
11 described in Section 4.9.4 of the 2013 PEA.

12 **4.12.5.2 Environmental Effects**

13 **No Action Alternative**

14 Under the No Action Alternative, long-term minor impacts to cultural resources are anticipated
15 as described in Section 4.9.4.2 of the 2013 PEA. Ongoing management and monitoring occurs to
16 ensure cultural resource compliance and to minimize the potential for inadvertent damage to
17 resources during training with heavy vehicles.

18 **Alternative 1—Implement Force Reductions**

19 Alternative 1 would have a minor, beneficial effect on cultural resources. As discussed in Section
20 4.9.4.2 of the 2013 PEA, there is only one historic structure located on the installation and there
21 is little potential for it to be impacted by troop reductions. The potential for inadvertent adverse
22 impacts to archaeological sites as a result of training exercises is expected to be reduced under
23 this alternative.

24 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
25 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort
26 Irwin, the Army would ensure that adequate staffing remains so that the installation would
27 comply with all mandatory environmental regulations.

28 **4.12.6 Noise**

29 **4.12.6.1 Affected Environment**

30 Noise is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
31 Section 4.9.1.2, because of negligible impacts as a result of implementing alternatives included
32 in that analysis. Fort Irwin is home to the National Training Center, where brigade-size units are

1 able to train in simulated rigorous combat conditions using weapons simulators and live fire. The
2 range areas support air-to-ground gunnery and firing, artillery, air maneuver, and ground
3 maneuver, including armored vehicle training. Sensitive noise receptors, such as off-installation
4 civilian populations and communities, are relatively far removed from main engagement areas
5 where noise impacts are generated as described in the 2013 PEA.

6 **4.12.6.2 Environmental Effects**

7 **No Action Alternative**

8 Under the No Action Alternative, the 2013 PEA anticipated negligible noise impacts, since the
9 area surrounding Fort Irwin is generally characterized as desert and mountainous terrain with
10 few human noise receptors nearby, and impacts to wildlife would be short term and not
11 significant. Impacts under the No Action Alternative on Fort Irwin remain the same as those
12 discussed in the 2013 PEA.

13 **Alternative 1—Implement Force Reductions**

14 The 2013 PEA concluded that the force reductions at Fort Irwin would result in slightly
15 beneficial noise impacts due to a decrease in usage of small arms ranges and maneuver areas.
16 The size of this negligible, beneficial impact under Alternative 1 would be similar to that
17 described in the 2013 PEA.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
19 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
20 Fort Irwin, the Army would ensure that adequate staffing remains so that the installation would
21 comply with all mandatory environmental regulations including noise ordinances
22 and regulations.

23 **4.12.7 Soils**

24 **4.12.7.1 Affected Environment**

25 The soils affected environment on the installation remains the same as was discussed in Section
26 4.9.5.1 of the 2013 PEA.

27 **4.12.7.2 Environmental Effects**

28 **No Action Alternative**

29 Under the No Action Alternative in the 2013 PEA, long-term, minor, adverse impacts to soils
30 were anticipated from continuing training, to include impacts to soils from off-road movement of
31 wheeled and tracked vehicles. Impacts under the No Action Alternative on Fort Irwin remain the
32 same as those discussed in Section 4.9.5.2 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1 of the 2013 PEA, minor, beneficial impacts to soils were anticipated as a
3 result of less use of training areas. A force reduction would result in less erosion, soil
4 compaction, and loss of vegetation from a decrease in use of wheeled and tracked vehicles.

5 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
6 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
7 potential impacts from these activities on soils are not analyzed.

8 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
9 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
10 Irwin, the Army would ensure that adequate staffing remains so that the installation would
11 comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Irwin
12 would be beneficial and remain the same as those discussed in Section 4.9.5.2 of the 2013 PEA.

13 **4.12.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 14 Species)**

15 **4.12.8.1 Affected Environment**

16 The affected environment for biological resources at Fort Irwin has not had substantive changes
17 since 2013, as described in Section 4.9.6.1 of the 2013 PEA.

18 **4.12.8.2 Environmental Effects**

19 **No Action Alternative**

20 Implementation of the No Action Alternative would result in minor, adverse impacts similar to
21 those that are currently occurring to biological resources as described in Section 4.9.6.2 of the
22 2013 PEA. Fort Irwin would continue to adhere to its existing military land use as described in
23 the installation's INRMP and ESMP. Listed species and species at risk recorded on the
24 installation would also continue to be managed in accordance with the terms and conditions
25 identified within biological opinion(s) issued by USFWS and any conservation measures
26 identified in ESA, Section 7 consultation documents.

27 **Alternative 1—Implement Force Reductions**

28 Under Alternative 1, minor, beneficial impacts are anticipated to biological resources at Fort
29 Irwin. Such beneficial impacts include a reduction in scheduling conflicts for training area access
30 to conduct resource monitoring, an increase in the ease of implementing more proactive
31 conservation management practices, and a minor reduction in maneuvers and live-fire activities.
32 These likely beneficial effects would lessen the damage and disturbances to biological resources.
33 Although a majority of maneuvers at Fort Irwin would continue to occur in support of National

1 Training Center training rotations and to support the training of non-resident units from across
2 the Army, minor, beneficial impacts are anticipated to biological resources under Alternative 1.

3 Adverse impacts to biological resources could conceivably occur if force reductions prevented
4 environmental compliance from being properly implemented. However, the Army is committed
5 to ensuring that personnel cuts will not result in non-compliance with natural resources
6 regulations. Even if the full end-strength reductions were to be realized at Fort Irwin, the Army
7 would ensure that adequate staffing remains so that mandated environmental requirements would
8 continue to be met.

9 **4.12.9 Wetlands**

10 **4.12.9.1 Affected Environment**

11 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in
12 Section 4.9.1.2, because of lack of significant, adverse environmental impacts as a result of
13 implementing alternatives included in that analysis. Wetlands on Fort Irwin are fenced as off-
14 limits to vehicle or foot traffic. No changes have occurred to the affected environment
15 since 2013.

16 **4.12.9.2 Environmental Effects**

17 **No Action Alternative**

18 Implementation of the No Action Alternative would result in negligible, adverse impacts to
19 wetlands and the affected environment would remain in its present state.

20 **Alternative 1—Implement Force Reductions**

21 Per Section 4.9.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under
22 Alternative 1. The installation would continue to manage its wetlands in accordance with the
23 installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts
24 to wetlands could conceivably occur if the further force reductions decreased environmental
25 staffing levels to a point where environmental compliance could not be properly implemented.
26 The Army is committed, however, to ensuring that personnel cuts will not result in non-
27 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
28 at Fort Irwin, the Army would ensure that adequate staffing remains so that mandated
29 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
30 Fort Irwin would remain the same as those discussed in Section 4.7.1.2 of the 2013 PEA.

1 **4.12.10 Water Resources**

2 **4.12.10.1 Affected Environment**

3 The affected environment for water resources on Fort Irwin remains the same as that described in
4 Section 4.9.7.1 of the 2013 PEA. There are no changes to surface water, groundwater, water
5 rights, water supply and demand, wastewater, and stormwater resources.

6 **4.12.10.2 Environmental Effects**

7 **No Action Alternative**

8 In the 2013 PEA, less than significant impacts to water resources were anticipated from the No
9 Action Alternative due to continued demand for and treatment of water for potable water uses
10 and consumption for numerous installation operations and activities. The water supply would not
11 be significantly impacted due to continued investment in water resources management
12 infrastructure by Fort Irwin. Water supply and wastewater impacts under the No Action
13 Alternative would remain the same as described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 Minor, beneficial impacts to water resources were anticipated from implementation of force
16 reductions under Alternative 1 in the 2013 PEA because of the reduced demand for potable water
17 supply and treatment, reduced generation of wastewater, and an increase in groundwater supply
18 capacity. Increased force reductions under Alternative 1 of this SPEA would continue to have the
19 same beneficial impacts to water supplies, groundwater, and wastewater.

20 Adverse water resources impacts could conceivably occur if personnel cuts prevented
21 environmental compliance from being implemented. The Army is committed to ensuring that
22 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
23 end-strength reductions were to be realized at Fort Irwin, the Army would ensure that adequate
24 staffing remains so that mandated environmental requirements would continue to be met
25 and implemented.

26 **4.12.11 Facilities**

27 **4.12.11.1 Affected Environment**

28 The facilities affected environment of the Fort Irwin installation remains the same as described in
29 Section 4.9.8.1 of the 2013 PEA.

1 **4.12.11.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA concluded that there would be minor, adverse impacts to facilities under the No
4 Action Alternative at Fort Irwin. Fort Irwin has sufficient cantonment area as well as the training
5 space to support its operations, but because the installation landfill is near capacity, long-term
6 minor, adverse impacts to the landfill are anticipated as a result of continued operations. Impacts
7 to facilities would remain the same as described in the 2013 PEA.

8 **Alternative 1—Implement Force Reductions**

9 The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to
10 facilities would occur on Fort Irwin. Under Alternative 1, implementation of proposed further
11 force reductions would continue to have overall minor, adverse impacts. Impacts would occur
12 from the fact that future, programmed construction or expansion projects may not occur or could
13 be downscoped; moving occupants of older, underutilized, or excess facilities into newer
14 facilities may require modifications to existing facilities; and a greater number of buildings on
15 the installation may become vacant or underutilized due to reduced requirements for facilities,
16 which would have a negative impact on overall space utilization. Some beneficial impacts are
17 also expected as a result of force reductions such as reduced demands for utilities and reduced
18 demands for training facilities and support services. Some units and Soldiers currently in
19 undersized or inadequate facilities would have the opportunity to move to more appropriately
20 sized or better-equipped facilities. The available capacity of Fort Irwin's landfill would support
21 the installation for a greater length of time as a result of the additional force reductions. As
22 discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker status as
23 a result of the reduction in forces is not reasonably foreseeable and not part of the scope of this
24 SPEA; therefore, potential impacts from these activities are not analyzed.

25 **4.12.12 Socioeconomics**

26 **4.12.12.1 Affected Environment**

27 Fort Irwin is a major training area for the U.S. military and is a census-designated place located
28 in the Mojave Desert in northern San Bernardino County, California. The ROI for Fort Irwin
29 used in this analysis is San Bernardino County, California. It includes those areas that are
30 generally considered the geographic extent to which the majority of the installation's Soldiers,
31 Army civilians, and contractor personnel, and their Families reside.

32 This section provides a summary of demographic and economic characteristics within the ROI.
33 These indicators are described in greater detail in Section 4.11.7 of the 2013 PEA. However,
34 some demographic and economic indicators have been updated where more current data
35 are available.

1 **Population and Demographics**

2 Using 2011 as a baseline, Fort Irwin has a total working population of 16,691 consisting of
 3 active component Soldiers and Army civilians, students and trainees, other military services,
 4 civilians and contractors. Of the total working population, 5,539 were permanent party Soldiers
 5 and Army civilians. The population that lives on Fort Irwin consists of 3,733 Soldiers and their
 6 5,667 Family members, for a total on-installation resident population of 9,400. There are also 14
 7 Army civilians with an estimated 22 Family members living on the installation (Volb, 2014). The
 8 portion of Soldiers and Army civilians living off the installation is estimated to be 4,512 and
 9 consists of Soldiers, Army civilians, and their Family members.

10 Compared to 2010, the 2012 population in San Bernardino County increased by 2.1 percent to
 11 over 2,077,000 (Table 4.12-2). The racial and ethnic composition of the ROI is presented in
 12 Table 4.12-3.

13 **Table 4.12-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
San Bernardino County, California	2,077,453	+2.1

14 **Table 4.12-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of California	73.7	6.6	1.7	13.9	3.6	38.2	39.4
San Bernardino County, California	77.6	9.6	2.0	7.0	3.3	50.5	32.0

15 ^a Includes those who identify themselves as Hispanic and non-Hispanic White.

16 **Employment and Income**

17 Employment and income information provided in Table 4.12-4 has been updated from the 2013
 18 PEA. Between 2000 and 2012, total employment in San Bernardino County grew at a faster rate
 19 than California (U.S. Census Bureau, 2000 and 2012b). In San Bernardino County, the median
 20 household income and median home value was lower than the California average. The
 21 percentage of San Bernardino County residents below the poverty line was greater than
 22 California as a whole (Table 4.12-4) (U.S. Census Bureau, 2012b).

1 **Table 4.12-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of California	16,761,982	+12.7	383,900	61,400	15.3
San Bernardino County, California	820,437	+21.4	241,500	54,750	17.6

2 Information regarding the workforce by industry for San Bernardino County was obtained from
 3 the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the
 4 employed labor force.

5 According to the U.S. Census Bureau, the educational services, and health care and social
 6 assistance sector accounts for the greatest share of the total workforce in San Bernardino County
 7 (22 percent). Retail trade is the second largest employment sector (13 percent), followed by
 8 manufacturing (10 percent). The arts, entertainment, and recreation, and accommodation and
 9 food services and professional, scientific, and management, and administrative and waste
 10 management services sectors individually represent slightly less than 9 percent of the workforce.

11 The Armed Forces account for 2 percent of the San Bernardino County workforce. The
 12 remaining eight sectors employ 36 percent of the workforce.

13 **Housing**

14 As reported in the 2013 PEA, Fort Irwin has approximately 2,030 military Family housing units
 15 on the installation. Of this, approximately 380 are allocated to officers and another 1,650 are
 16 designated for enlisted personnel. It is anticipated that an additional 585 military Family housing
 17 units would be constructed as part of the Community Development and Management Plan
 18 negotiated between the Army and a private housing developer. An additional 92 units are
 19 currently being completed on the installation.

20 Soldiers and Army civilians who live off the installation primarily reside in Barstow and small
 21 municipalities within proximity to Fort Irwin. There generally is an equal split between owner-
 22 and renter-occupied units; however, the vacancy rate is higher in renter-occupied units.
 23 Additional housing information is provided in the 2013 PEA.

24 **Schools**

25 Three elementary, two middle, and two high schools within the Silver Valley Unified School
 26 District provide educational services for military-connected students at Fort Irwin. Three of these
 27 schools, one elementary and two middle schools, are located on the installation. During the
 28 2009–2010 academic year, enrollment in the elementary school was over capacity while

1 enrollment in the middle schools was below capacity. Additional schools information is provided
2 in the 2013 PEA.

3 **Public Health and Safety**

4 Law enforcement at Fort Irwin is provided by 60 personnel. A cooperative agreement between
5 Fort Irwin and the San Bernardino County Sheriff is also in place to ensure the safety of area
6 residents. Additionally, Fort Irwin has a mutual assistance agreement with the Barstow Fire
7 Protection District. On-installation medical services are provided by the Medical Department
8 Activity, Dental Activity, Weed Army Community Hospital, and Mary E. Walker Clinic. The
9 primary off-installation healthcare provider is Barstow Community Hospital. Additional
10 information regarding these facilities is provided in the 2013 PEA.

11 **Family Support Services**

12 Family Support Services include Family, career, and financial counseling. Fort Irwin's CYSS
13 provides a variety of child care programs in addition to team sports and outreach sports programs
14 designed to encourage healthy physical and mental development. Additional information
15 regarding these facilities is provided in the 2013 PEA.

16 **Recreation Facilities**

17 Fort Irwin provides a variety of recreational opportunities for Soldiers and Army civilians.
18 Resources include a pool, multiple fitness centers, scheduled group exercise activities, and arts
19 and crafts, among others.

20 **4.12.12.2 Environmental Effects**

21 **No Action Alternative**

22 The continuation of operations at Fort Irwin represents a beneficial source of regional economic
23 activity. No additional impacts to housing, public and social services, public schools, public
24 safety, or recreational activities are anticipated.

25 **Alternative 1—Implement Force Reductions**

26 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
27 less than significant impact to socioeconomic resources. The description of impacts to the
28 various components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of 3,524¹⁷ Army positions (3,260 Soldiers and 264 Army civilians), with an average annual income of \$46,760 and \$65,615, respectively. In addition, this alternative would affect an estimated 5,349 Family members, including 1,966 spouses and 3,383 children. The total population of Army employees and their Family members who may be directly affected under Alternative 1 is projected to be 8,873.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted value falls outside the historical positive and negative range. Table 4.12-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income, employment, and population because the estimated percentage change is within the historical range.

Table 4.12-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+8.0	+4.3	+3.7	+3.6
Economic contraction significance value	-7.3	-3.5	-4.1	-2.2
Forecast value	-0.3	-0.3	-0.6	-0.4

Table 4.12-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

¹⁷ This number was derived by assuming the loss of 70 percent of Fort Irwin’s Soldiers and 30 percent of the Army civilians to arrive at 3,524. The 2013 PEA assumed the loss of 35 percent of Fort Irwin’s Soldiers and 15 percent of the Army civilians to arrive at 2,375.

1 **Table 4.12-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$210,744,200	-3,845 (Direct)	-8,873
		-700 (Induced)	
		-4,545 (Total)	
Total 2012 ROI economic estimates	\$66,751,565,000	820,437	2,077,453
Percent reduction of 2012 figures	-0.3	-0.6	-0.4

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 6 receipts would occur over a period of until 2020. EIFS estimates were analyzed based on total
 7 cumulative force reductions. Because of the maximum potential loss of 3,524 Soldiers and Army
 8 civilians under Alternative 1, EIFS estimates an additional 321 direct contract service jobs would
 9 also be lost. An additional 700 induced jobs would be lost because of the reduction in demand
 10 for goods and services within the ROI. The total reduction in employment is estimated to be
 11 4,545, a reduction of 0.55 percent from the total employed labor force in the ROI of 820,437.
 12 Income is estimated to fall by \$210.7 million, a 0.32 percent decrease in the ROI from 2012.
 13 Although impacts across the ROI are not expected to be significant, Fort Irwin is located in a
 14 more remote part of the ROI and employment impacts could be experienced more significantly
 15 in communities within proximity to the installation.

16 The total reduction in sales within the ROI under Alternative 1 is estimated to be \$282.4 million.
 17 There would also be a loss in sales tax receipts to local and state governments. The average state
 18 and local sales tax rate for California is 8.4 percent (Tax Foundation, 2014). To estimate sales
 19 tax reductions, information on the proportion of sales that would be subject to sales taxes on
 20 average across the country was utilized. According to the U.S. Economic Census an estimated 16
 21 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
 22 This percentage and applicable tax rate was applied to the estimated decrease in sales of \$282.4
 23 million resulting in an estimated sales tax receipts decrease of \$3.8 million under Alternative 1.

24 Of the 2,077,453 people (including those residing on Fort Irwin) who live within the ROI, 8,873
 25 Army employees and their Family members are predicted to no longer reside in the area under
 26 Alternative 1, resulting in a minor population reduction of 0.4 percent. This number likely
 27 overstates potential population impacts, because some of the people no longer employed by the
 28 military would continue to live and work within the ROI, finding employment in other
 29 industry sectors.

1 **Housing**

2 The population reduction under Alternative 1 would lead to a decreased demand for housing and
3 increased housing availability on the installation and to a small degree across the larger ROI.
4 Because the installation represents a relatively small share of the total ROI population and
5 subsequently occupied housing, negligible impacts to housing would result under Alternative 1.

6 **Schools**

7 Under Alternative 1, the reduction of 3,524 Soldiers and Army civilians would decrease the
8 number of children within the ROI by approximately 3,383. As reported in the 2013 PEA, the
9 elementary school on Fort Irwin was operating above capacity during the 2009-2010 academic
10 year. A decline in enrollment by military-connected students under Alternative 1 has the
11 potential to reduce overcrowding and bring enrollment closer to capacity estimates. This would
12 result in a minor, beneficial impact.

13 Both middle schools on Fort Irwin were operating below capacity during the 2009–2010
14 academic year. The further reduction of enrollment that would occur under Alternative 1 has the
15 potential to result in minor impacts to Federal Impact Aid funds. The amount of Federal School
16 Impact Aid a district receives is based on the number of students who are considered “federally
17 connected” and attend district schools. Actual projected dollar amounts cannot be determined at
18 this time due to the variability of appropriated dollars from year to year, and the uncertainty
19 regarding the actual number of affected school-age children for Army Families. Middle schools
20 on Fort Irwin would likely need fewer teachers and materials as enrollment drops, which would
21 partially offset the reduced Federal Impact Aid. In addition, these schools may consolidate
22 should enrollment fall below sustainable levels.

23 **Public Services**

24 The demand for law enforcement, medical care providers, and fire and emergency service
25 providers on the installation would decrease if Soldiers, Army civilians, and their Family
26 members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public
27 services could conceivably occur if personnel cuts were to substantially affect hospitals, military
28 police, and fire and rescue crews on the installation. These scenarios are not reasonably
29 foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or
30 civilian personnel, the Army is committed meeting to health and safety requirements. The
31 impacts to public services are not expected to be significant because the existing service level for
32 the installation and the ROI would still be available.

33 **Family Support Services and Recreation Facilities**

34 Family Support Services and recreational facilities would experience reduced demand and use
35 and subsequently, would require fewer personnel and/or reduced funding; however, the Army is
36 committed to meeting the needs of the remaining population on the installation. Demand for

1 these services off the installation may also experience a slight decline. Overall, minor impacts to
2 Family Support Services and recreation facilities would occur under Alternative 1.

3 **Environmental Justice and Protection of Children**

4 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
5 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
6 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
7 and adverse human health or environmental effects of its programs, policies, and activities on
8 minority and low-income populations” (EPA, 1994). As shown in Table 4.12-3, the proportion of
9 minority and low-income populations in San Bernardino County is greater than in California on
10 average. Because of the higher percentage of minority and low-income populations in San
11 Bernardino County, Alternative 1 has the potential to affect minority- and/or low-income owned
12 and/or -staffed businesses. Because the installation is located in a more remote part of the ROI,
13 those minority and/or low-income owned and/or staffed businesses within proximity to the
14 installation may experience more significant effects than other areas across the ROI.

15 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
16 federal agencies are required to identify and assess environmental health and safety risks that
17 may disproportionately affect children and to ensure that the activities they undertake do not
18 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
19 were to be realized, the Army is committed to implementing required environmental compliance
20 and meeting the health and safety needs of the people associated with the installation, including
21 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
22 environmental health and safety risks to children within the ROI. Additionally, this analysis
23 evaluates the effects associated with workforce reductions only, and any subsequent actions on
24 the installation that may require ground-disturbing activities that have the potential to result in
25 environmental health and safety risks to children, such as demolishing vacant buildings, is
26 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
27 as appropriate.

28 **4.12.13 Energy Demand and Generation**

29 **4.12.13.1 Affected Environment**

30 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
31 PEA as described in Section 4.9.1.2 because there were no significant, adverse environmental
32 impacts from implementing alternatives included in the analysis. No changes have occurred to
33 the affected environment since 2013. As described in the 2013 PEA, electric power is provided
34 by Southern California Edison and is distributed via overhead lines to Fort Irwin and the
35 surrounding communities. While there is a transcontinental natural gas transmission pipeline that
36 runs along its boundary, Fort Irwin itself does not use natural gas as a source of energy.

1 **4.12.13.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, adverse impacts to energy demand and generation would be
4 the same as discussed in the 2013 PEA and would be negligible. Fort Irwin would continue to
5 consume similar types and amounts of energy, and maintenance of existing utility systems
6 would continue.

7 **Alternative 1—Implement Force Reductions**

8 Minor, beneficial impacts to energy demand are anticipated because force reductions would
9 reduce the installation's overall demand for energy. The installation would also be better
10 positioned to meet energy and sustainability goals.

11 **4.12.14 Land Use Conflicts and Compatibility**

12 **4.12.14.1 Affected Environment**

13 The land use affected environment of the Fort Irwin installation remains effectively the same as
14 described in Section 4.9.10.1 of the 2013 PEA.

15 **4.12.14.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the 2013 PEA anticipated there would be minor environmental
18 impacts to installation land use but changes in land use would not be anticipated to occur.
19 Impacts under the No Action Alternative on Fort Irwin remain the same as those discussed in the
20 2013 PEA.

21 **Alternative 1—Implement Force Reductions**

22 The 2013 PEA concluded that the force reductions at Fort Irwin would result in land use impacts
23 similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would
24 be similar to those described in the 2013 PEA.

25 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
26 with land use ordinances and regulations. Even if the full end-strength reductions were to be
27 realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the
28 installation would comply with all mandatory environmental regulations including land use
29 ordinances and regulations.

1 **4.12.15 Hazardous Materials and Hazardous Waste**

2 **4.12.15.1 Affected Environment**

3 As described in the 2013 PEA (Section 4.9.11.1), hazardous materials are used in most facilities
4 at Fort Irwin. These hazardous materials include fuels, oils, and other chemicals. Fort Irwin's
5 HWMP is used to manage hazardous waste in a manner that promotes the protection of public
6 health and the environment. The HWMP covers all of the hazardous waste generated by Fort
7 Irwin to ensure proper disposal, storage, and recovery of hazardous materials. Hazardous waste
8 is managed in accordance with applicable federal and state regulations. No substantial changes
9 have occurred to the affected environment since 2013.

10 **4.12.15.2 Environmental Effects**

11 **No Action Alternative**

12 As stated in the 2013 PEA, short- and long-term, minor, and adverse impacts are anticipated
13 under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes
14 would continue on Fort Irwin in accordance with all applicable laws, regulations, and plans.

15 **Alternative 1—Implement Force Reductions**

16 The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts from hazardous
17 materials and hazardous waste would occur on Fort Irwin. Alternative 1 in this SPEA is not
18 expected to involve major changes to the installation operations or types of activities conducted
19 on Fort Irwin. Because of the reduced numbers of people, it is expected that the potential for
20 spills would be reduced further during training and maintenance activities. There would be a
21 minor decrease in the use of pesticides because of lower occupancy rates in Family housing and
22 other facilities. In general, Fort Irwin would continue to implement its hazardous waste
23 management in accordance with its HWMP and applicable regulations under Alternative 1.

24 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
25 regulations governing the handling, management, disposal, and clean up, as appropriate, of
26 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
27 realized at Fort Irwin, the Army would ensure that adequate staffing remains so that the
28 installation would comply with all mandatory environmental regulations.

29 **4.12.16 Traffic and Transportation**

30 **4.12.16.1 Affected Environment**

31 The transportation affected environment of the Fort Irwin ROI remains the same as described in
32 Section 4.9.12.1 of the 2013 PEA.

1 **4.12.16.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts in that the
4 traffic conditions at Fort Irwin would remain unchanged. Overall, as described in the 2013 PEA,
5 the transportation system does not experience significant congestion.

6 **Alternative 1—Implement Force Reductions**

7 The 2013 PEA concluded that the force reductions at Fort Irwin would result in minor, beneficial
8 impacts to traffic and transportation systems. There would be a reduction in the time of delays at
9 the main gate ACP during morning and evening commutes. The size of this beneficial impact
10 under Alternative 1 would be slightly larger than anticipated at the time of the 2013 PEA.

11 **4.12.17 Cumulative Effects**

12 As noted in Section 4.9.13 of the 2013 PEA, Fort Irwin did not identify any foreseeable off-
13 installation projects, or on-installation military operations or activities that would, in conjunction
14 with Army strength reduction, result in adverse cumulative effects to the environment. The ROI
15 includes San Bernardino County in California.

16 **Reasonably Foreseeable Future Projects on Fort Irwin**

17 No reasonably foreseeable future projects on Fort Irwin were identified by the installation.

18 **Reasonably Foreseeable Future Projects outside Fort Irwin**

19 The Army is not aware of any reasonably foreseeable future projects outside Fort Irwin which
20 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
21 projects and actions that affect regional economic conditions and generally include construction
22 and development activities, infrastructure improvements, and business and government projects
23 and activities. Additionally, smaller, less diversified economies will be more vulnerable to the
24 force reductions and provide fewer opportunities to displaced Army employees, while larger
25 economies with more job opportunities could absorb some of the displaced Army workforce,
26 lessening these adverse effects.

27 **No Action Alternative**

28 There would be no cumulative effects of the foreseeable future actions with the No Action
29 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
30 Alternative would not contribute to any changes.

31 **Alternative 1—Implement Force Reductions**

32 With the exception of socioeconomics, there would be no cumulative effects of the foreseeable
33 future actions with Alternative 1. The socioeconomic impact within the ROI, as described in

1 Section 4.12.12.2 with a reduction of 3,524 Soldiers and Army civilians, would be minor and
2 adverse on population, the regional economy, schools, and housing. Fort Irwin is located in a
3 fairly remote area in San Bernardino County 135 miles from the large urban city of San
4 Bernardino with over 2 million residents. Because of the large employment base and diverse
5 economy in the region, the ROI would be less vulnerable to these force reductions because other
6 industries and considerable economic activity occurs within the ROI. However, in proximity to
7 the installation, there would be fewer employment opportunities, and displaced personnel would
8 likely move away from these proximate communities, possibly to San Bernardino.

9 Other construction and development activities on the installation and in the ROI would benefit
10 the regional economy through additional economic activity, jobs, and income in the ROI. Under
11 Alternative 1, the loss of approximately 3,600 Soldiers and Army civilians, in conjunction with
12 other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic
13 conditions in the broader ROI.

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1 **4.13 Fort Jackson, South Carolina**

2 **4.13.1 Introduction**

3 Fort Jackson is located in Richland County, South Carolina, within the city limits of Columbia
4 and consists of 52,313 acres (Figure 4.13.1). Training activities and exercises, such as general
5 use training, range/impact area, and noise buffers, are the predominant land uses on Fort Jackson.
6 Approximately 46,500 acres are designated as training areas, including more than 100 ranges and
7 field training sites.

8 Fort Jackson, as the U.S. Army's main production center for Basic Combat Training, trains 50
9 percent of the Army's Basic Combat Training load and 60 percent of the women entering the
10 Army each year. Fort Jackson is home to the U.S. Army Soldier Support Institute, the Armed
11 Forces Army Chaplaincy Center and School, and the National Center for Credibility Assessment
12 (formerly the DoD Polygraph Institute). It is also home to the Army's Drill Sergeant School,
13 which trains all active and Reserve instructors.

14 Fort Jackson has 147 alphanumeric training areas, which encompass approximately 40,639 acres.
15 This includes a 13,836-acre area licensed to the South Carolina ARNG in the southeastern
16 portion of the installation.

17 Fort Jackson's 2013 baseline permanent party population was 5,735. In this SPEA, Alternative 1
18 assesses a potential population loss of 3,100, including approximately 2,363 permanent party
19 Soldiers and 708 Army civilians.

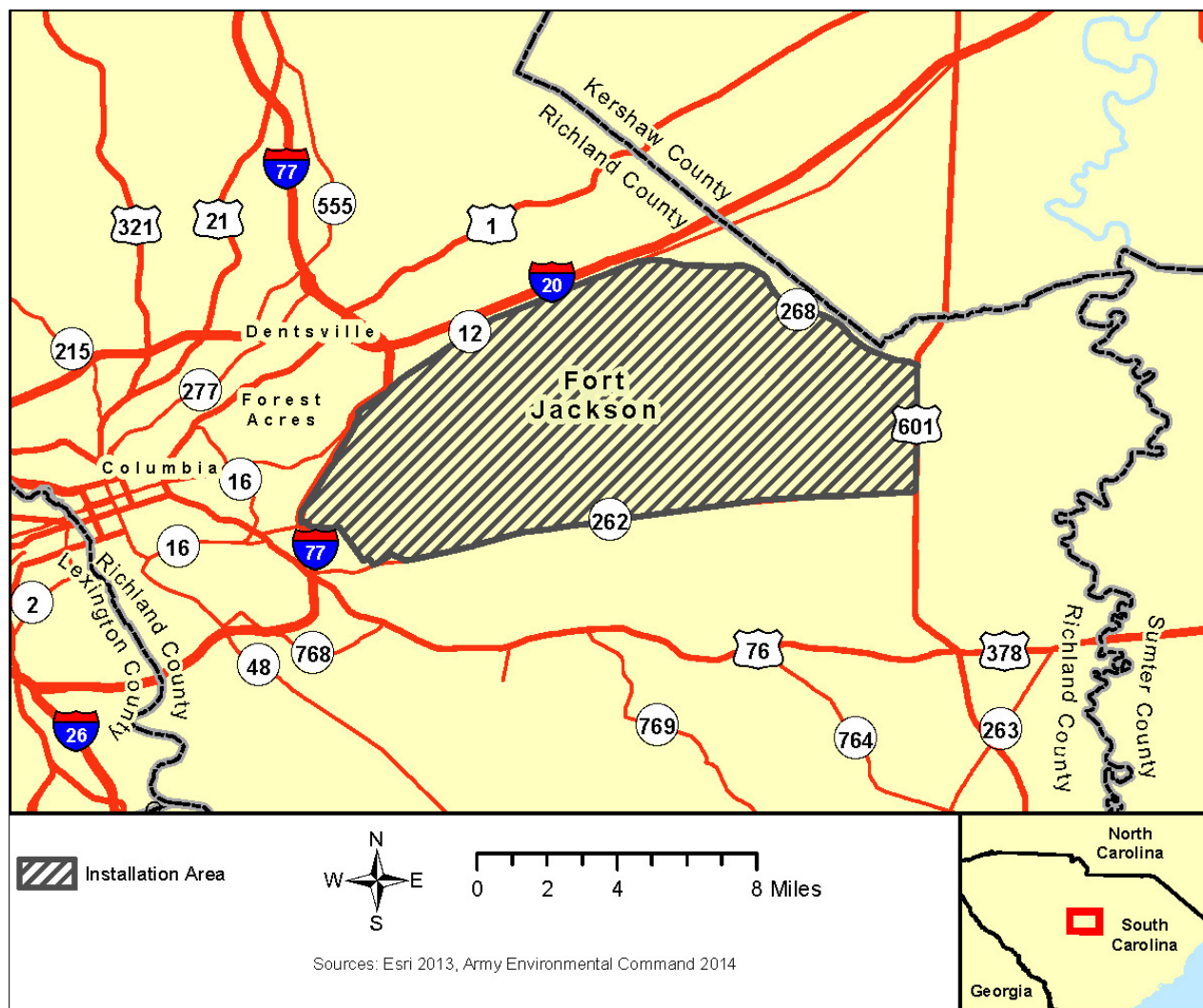


Figure 4.13-1. Fort Jackson, South Carolina

4.13.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated at Fort Jackson; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.13-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.13-1. Fort Jackson Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Beneficial
Cultural Resources	Negligible	Negligible
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

2 **4.13.3 Air Quality**

3 **4.13.3.1 Affected Environment**

4 Fort Jackson is located in an attainment area for all criteria pollutants (EPA, 2013). Fort Jackson
 5 operates in compliance with State Permit No. 1900-0016, issued by the South Carolina
 6 Department of Health and Environmental Control. Although this permit expired in 2005, there is
 7 a permit shield in place, which means that a new permit has been applied for, and that Fort
 8 Jackson is considered to be permitted during this time. Fort Jackson has submitted several permit
 9 renewal applications; the latest was submitted on March 26, 2010, requesting that the permit be
 10 converted from a Title V permit (major source) to a synthetic minor/conditional major permit.
 11 The permit requirements include annual inventory for all significant stationary sources of air
 12 emissions and covers monitoring, recordkeeping, and reporting requirements. Activities that
 13 produce air emissions at Fort Jackson include boilers, generators, ordnance detonation, fueling
 14 operations, storage tanks, and paint booths (Fort Jackson, 2013). The largest sources of allowable
 15 emissions on the installation are the central energy plants, which burn natural gas and fuel oil
 16 (USACE, 2006). Fugitive dust is generated from unpaved roads, construction projects, and troop
 17 training operations (U.S. Army, 2008). Fort Jackson’s 2011 installation-wide air emissions for all
 18 significant stationary sources are provided in Table 4.13-2.

1 **Table 4.13-2. Installation-wide Air Emissions (2011)**

Pollutant	Emissions (tons per year)
NO _x	28.6
CO	34.2
VOC	17.0
PM ₁₀ /PM _{2.5}	4.9
SO ₂	2.2

2 Source: Fort Jackson (2013)

3 **4.13.3.2 Environmental Effects**

4 **No Action Alternative**

5 Continuation of existing levels of emissions under the No Action Alternative would result in
 6 minor, adverse impacts to air quality. Emissions would remain at levels below the maximum
 7 allowed under existing permits.

8 **Alternative 1—Implement Force Reductions**

9 The potential force reduction at Fort Jackson under Alternative 1 would result in minor, long-
 10 term, beneficial air quality impacts due to reduced demand for heating/hot water, and operation
 11 of mobile sources to and from the facility. Fugitive dust emissions from training activities would
 12 also be reduced assuming training-generated dust is roughly proportional to force levels.

13 The relocation of personnel outside of the area because of force reductions could result in
 14 negligible, short-term effects on air quality associated with mobile sources. As discussed in
 15 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
 16 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
 17 therefore, potential impacts to air quality from these activities are not analyzed.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
 19 quality regulations. Even if the full end-strength reductions were to be realized at Fort Jackson,
 20 the Army would ensure that adequate staffing remains so that the installation would comply with
 21 all mandatory environmental regulations.

22 **4.13.4 Airspace**

23 **4.13.4.1 Affected Environment**

24 Primary aviation assets and use at Fort Jackson are centered on helicopters. FAA controls
 25 airspace use in Columbia, South Carolina, and airspace at Fort Jackson is an SUA-restricted
 26 airspace R-6001. This restricted airspace operates almost continuously from the surface to 3,200

1 feet msl and sporadically from the surface to 5,500 feet msl, or as high as 23,000 feet msl. Other
2 airspace classifications surrounding Fort Jackson include a Class C airspace to the south ranging
3 from the surface to 4,200 feet msl, and regulated Class D airspace to 2,800 feet msl (U.S.
4 Department of the Air Force, 2012). There are major flight activities surrounding Fort Jackson
5 from Columbia Metropolitan Airport, Shaw AFB, and McEntire Joint National Guard Base.

6 **4.13.4.2 Environmental Effects**

7 **No Action Alternative**

8 Fort Jackson would maintain existing airspace operations under the No Action Alternative. All
9 current airspace restrictions are sufficient to meet current airspace requirements, and no airspace
10 conflicts are anticipated. No impacts to airspace are expected.

11 **Alternative 1—Implement Force Reductions**

12 Airspace restrictions and classifications around Fort Jackson are sufficient to meet current
13 airspace requirements, and force reductions would not alter the current airspace use. Alternative
14 1 would not be projected to require additional airspace restrictions or the establishment of SUA.
15 Force reductions may slightly reduce helicopter use at Fort Jackson, but these impacts would be
16 minimal. A slight, beneficial impact would occur as a result of Alternative 1.

17 **4.13.5 Cultural Resources**

18 **4.13.5.1 Affected Environment**

19 The affected environment for cultural resources at Fort Jackson is the installation footprint.
20 Archaeological surveys at Fort Jackson have been completed in all areas where survey is
21 permitted (excludes impact areas where there is UXO). A total of 663 archaeological sites have
22 been identified within the installation; 55 of these sites have been determined eligible for listing
23 in the NRHP and 18 require further investigation before eligibility can be determined (U.S.
24 Army, 2008). These resources provide information on the prehistory and history of the area from
25 10,000 B.C. to the mid-1900s.

26 Fort Jackson has completed numerous architectural surveys of the approximately 1,674 resources
27 present on the installation (U.S. Army, 2008). Most of these resources have been constructed in
28 the past 35 years. The results of the architectural surveys indicate that only three structures on
29 the installation are eligible for listing in the NRHP. These three structures were fully documented
30 and have since been demolished.

31 Although not eligible for listing in the NRHP, there are 27 historic cemeteries located at Fort
32 Jackson (U.S. Army, 2008). These cemeteries are protected and are managed in the same manner
33 as NRHP eligible cultural resources.

1 Fort Jackson consults with 12 federally recognized tribes that are culturally affiliated with the
2 resources managed by the installation. The installation has signed an MOU with the tribes. To
3 date, no TCPs or sacred areas have been identified during consultation with these tribes.

4 The Fort Jackson ICRMP was finalized in 2009. In addition to this document, the installation is
5 in the process of drafting a programmatic agreement for streamlining compliance with Section
6 106 of the NHPA with the South Carolina SHPO (U.S. Army, 2008).

7 **4.13.5.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, cultural resources would continue to be managed in adherence
10 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
11 installation would continue to consult with the SHPO and applicable tribes on the effects of
12 undertakings that may affect cultural resources. Activities with the potential to affect cultural
13 resources would continue to be monitored and regulated through the use of existing agreements
14 and/or preventative and minimization measures. The effects of the No Action Alternative would
15 be negligible as there are few archaeological sites and no historic architectural resources present
16 on the installation and existing protocols and procedures should prevent adverse impacts to
17 these resources.

18 **Alternative 1—Implement Force Reductions**

19 Alternative 1 would have a negligible impact on cultural resources. Currently, there are no
20 historic architectural resources present on the installation that could be impacted in the future by
21 the force reductions proposed under this alternative. As discussed in Chapter 1, the potential
22 demolition of existing buildings as a result of force reductions is not reasonably foreseeable and
23 not part of the scope of this SPEA; therefore, potential impacts from demolition activities are
24 not analyzed.

25 The effects of this alternative are considered to be similar to the No Action Alternative –future
26 activities with the potential to effect cultural resources would continue to be monitored and the
27 impacts reduced through preventative and minimization measures. This alternative could result
28 in some beneficial effects as a decrease in training activities could reduce the potential for
29 inadvertent disturbance of archaeological resources. Additionally, with fewer people to support,
30 there may be a reduction in the number of undertakings with the potential to affect
31 cultural resources.

32 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
33 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort
34 Jackson, the Army would ensure that adequate staffing remains so that the installation would
35 comply with all mandatory environmental regulations.

1 **4.13.6 Noise**

2 **4.13.6.1 Affected Environment**

3 Individuals on and off the installation at Fort Jackson could be subjected to multiple sources of
4 noise during the day, including normal operation of heating, ventilating, and air conditioning
5 systems; military unit physical training activities; lawn maintenance; and general maintenance of
6 streets and sidewalks. Other minor noise sources include traffic, aircraft over flights, and
7 construction activities (Fort Jackson, 2013). The primary noise generators at Fort Jackson are
8 small arms, demolition, and artillery (USACE, 2006). In addition, the South Carolina RNG
9 Army Aviation Support Facilities (AASF) conducts low-level helicopter training at Fort Jackson,
10 creating some noise impacts. Helicopter training takes place typically 3 nights per week with
11 additional operations conducted 2 days per week and 2 weekends per month. Activity levels
12 usually do not exceed 8 to 10 operations per day (CMCOG, 2009).

13 Fort Jackson Environmental Regulation 200-8, June 2005, outlines policy, establishes
14 procedures, and assigns responsibilities for environmental regulatory compliance at Fort Jackson,
15 including noise abatement. Regulation 200-8 established an ICUZ program, which is required to
16 ensure that adjacent land uses are compatible with a proposed action or project. Updates to Fort
17 Jackson's ICUZ study must be prepared no less than every 5 years. The ICUZ program has
18 resulted in the mapping of areas on the installation which are within the contour lines of NZ II
19 and NZ III (USACE, 2006).

20 All NZ III areas generated by the small arms range, demolition, and artillery fire are contained
21 within the installation. The areas primarily affected by this level of noise include the following
22 sites: the small arms ranges adjacent to Dixie Road and Hartsville Guard Road; Training Area
23 7A; the East Impact Area; 1LT Joe V. Abernathy and LTC Terry D. Allen Jr. ranges; and the
24 South Carolina ARNG artillery firing points (USACE, 2006). Current large caliber operations
25 are not frequent enough to generate NZ II or NZ III levels (Fort Jackson, 2013).

26 Zone II boundaries generated by range operations extend over training areas adjacent to the
27 firing ranges and impact areas. No Zone II noise contours enter the cantonment area; however, a
28 small section of the South Carolina ARNG Multiple Launch Rocket System noise footprint
29 extends beyond the boundaries of the installation. This portion of the firing footprint is
30 considered Zone II (USACE, 2006).

31 Fort Jackson has established sound buffer areas adjacent to portions of the installation perimeter
32 to mitigate any potential for disturbance of noise-sensitive uses located outside the installation
33 boundaries. These zones, which are approximately 900 meters wide, are located adjacent to
34 Leesburg Road and Highway 601 along the southern and eastern borders of the installation,
35 flanking the South Carolina ARNG cantonment (Fort Jackson, 2013). Within these areas,

1 artillery and mortar fire does not occur, helping reduce the exposure of off-installation residents
2 to unwanted sound (U.S. Army, 2008).

3 While noise complaints are not frequent at Fort Jackson, the installation maintains a Noise
4 Complaint Management Program and implements an IONMP that provides guidelines for noise
5 management pertaining to installation functions. The goal of the IONMP, last updated in May
6 2009, is to achieve compatibility between the Army and the surrounding communities so that
7 Soldier training on the installation will not be interrupted or restricted due to public concern over
8 associated noise levels (Fort Jackson, 2013).

9 **4.13.6.2 Environmental Effects**

10 **No Action Alternative**

11 Under the No Action Alternative, existing force levels at Fort Jackson would remain the same
12 and existing operations would continue unchanged. Primary noise generators and sources of
13 background noise would remain similar in character to those described above. All NZ II and III
14 contours would remain confined to the installation, with the exception of a small section of NZ II
15 associated with the South Carolina ARNG Multiple Launch Rocket System noise footprint.
16 Noise complaints are expected to continue with a low degree of frequency, and the installation
17 would continue to implement ongoing noise management measures to ensure compatibility
18 between Army activities and surrounding communities. Negligible impacts are expected under
19 the No Action Alternative.

20 **Alternative 1—Implement Force Reductions**

21 Force reductions under Alternative 1 are expected to have beneficial impacts because of
22 decreased personnel and training activities. Primary noise generators and sources of background
23 noise would remain similar in character to those described above. NZ II and III contours are
24 expected to remain confined to the installation. Noise complaints would likely decrease in
25 frequency. The Army is also committed to ensuring that personnel cuts will not result in non-
26 compliance with noise ordinances and regulations.

27 **4.13.7 Soils**

28 **4.13.7.1 Affected Environment**

29 Fort Jackson is located within the Atlantic Coastal Plain physiographic province, which is
30 characterized by gently rolling hills, but a mostly flat, moderate relief. The western and eastern
31 portions of the installation are dominated by alluvial plains of Gills and Mill Creeks, and
32 Colonels Creek, respectively. Each of these creeks has a 100-year floodplain associated with it;
33 however, the majority of the installation is not located within the floodplain (FEMA, 2010a).
34 Elevations range from 160 feet and 540 feet above msl, but most of the installation is on gentle
35 slopes generally less than 3 percent (U.S. Army, 2008).

1 The predominant upland soils on Fort Jackson are from the Ailey, Lakeland, Pelion, and
2 Vacluse soil series and are characterized as very deep, gently rolling, and well drained to
3 excessively drained. Floodplain and wetland soils are dominated by soils from the Johnston
4 series which is characterized as very deep, flat, and very poorly drained. Most of the
5 predominant soils on the installation are underlain by marine deposits of varying texture
6 (NRCS, 2013).

7 The erodibility of most of the soils on Fort Jackson is low; soils from the Johnston series are
8 moderately erodible. Removal of vegetation to support training activities, or locating training
9 activities on steep slopes has accelerated soil erosion on Fort Jackson; however, programs are in
10 place to ensure that soil resources are properly managed, and BMPs are used to minimize soil
11 erosion on the installation (U.S. Army, 2008).

12 **4.13.7.2 Environmental Effects**

13 **No Action Alternative**

14 Minor, adverse impacts to soils are anticipated under the No Action Alternative. Impacts to soils
15 from any current projects under construction would have already been assessed and, if required,
16 been properly permitted and mitigated for. Additionally, activities that occur in range impact
17 areas and landing zones would continue at current schedules, resulting in minor impacts to soil.
18 Under the No Action Alternative, Fort Jackson would maintain its current management plan for
19 soils (U.S. Army, 2008)

20 **Alternative 1—Implement Force Reductions**

21 Under Alternative 1, minor, beneficial impacts to soils are anticipated. Force reductions would
22 likely result in decreased use of the training ranges and air fields which could have beneficial
23 impacts to soils because there would be an anticipated decrease in soil compaction and
24 vegetation loss. Over time, less sediment would discharge into state and federal waters.

25 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
26 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
27 potential impacts from these activities on soils are not analyzed.

28 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
29 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
30 Jackson, the Army would ensure that adequate staffing remains so that the installation would
31 comply with all mandatory regulations.

1 **4.13.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 2 **Species)**

3 **4.13.8.1 Affected Environment**

4 **Vegetation**

5 Vegetation on Fort Jackson is diverse and abundant, as field investigations and surveys have
6 identified over 750 species of flora on the installation. The area of Fort Jackson encompasses a
7 wide variety of vegetative site conditions ranging from bottomland hardwood communities to
8 xeric longleaf pine communities. In general, Fort Jackson can be classified into five primary
9 terrestrial, non-urban vegetative types: pine, pine/upland hardwood, upland hardwood,
10 bottomland hardwood, and open field. There are also landscaped areas that have ornamental trees
11 and Bermuda grass (*Cynodon dactylon*). Fort Jackson's vegetation types are discussed in further
12 detail in the INRMP (U.S. Army, 2008).

13 **Wildlife**

14 Fort Jackson provides a diversity of habitats for a variety of plants, fish, and other wildlife
15 species within its 52,313 acres. Through systematic surveys, some rare, threatened, and
16 endangered species have been identified on the installation. Common terrestrial and aquatic
17 wildlife species include representatives of mammals, fishes, amphibians, reptiles, birds, and
18 invertebrates typically found in association with the Sandhills physiographic region of the
19 Southeast. Detailed species lists are found in Fort Jackson's INRMP (Fort Jackson-DLE-
20 ENRD, 2004).

21 **Threatened and Endangered Species**

22 To date, Fort Jackson provides habitat for one federally listed endangered animal species: the
23 RCW (*Picoides borealis*) and two federally listed endangered plant species: the rough-leaved
24 loosestrife (*Lysimachia asperulaefolia*) and the smooth coneflower (*Echinacea laevigata*) (U.S.
25 Army, 2008). No land within Fort Jackson has been identified as critical habitat for any federally
26 listed threatened or endangered species (U.S. Army, 2008).

27 Although not currently listed as federally threatened or endangered, Fort Jackson provides
28 habitat for four state sensitive animal species: southeastern myotis (*Myotis austroriparius*) (state
29 species of concern), Rafinesque's big-eared bat (*Plecotus rafinesquii*) (state endangered),
30 loggerhead shrike (*Lanius ludovicianus*) (state species of concern), and Bachman's sparrow
31 (*Aimphila aestivalis*) (state species of concern) (South Carolina Department of Natural
32 Resources, 2006; U.S. Army, 2008). These species may be federally listed in the future if their
33 population numbers continue to decline (U.S. Army, 2008).

34 The recently de-listed bald eagle is a transient visitor to Fort Jackson. According to the INRMP,
35 no bald eagle nests or permanent roost sites are known to occur on the installation, and it is

1 unlikely that the species will nest at Fort Jackson because the habitat is not suitable (Fort
2 Jackson-DLE-ENRD, 2004).

3 **4.13.8.2 Environmental Effects**

4 **No Action Alternative**

5 Implementation of the No Action Alternative would result in minor impacts to biological
6 resources, and the affected environment would remain in its current state. There would not be
7 any significant effects, because Fort Jackson would continue to abide by federal and state
8 regulations governing the management of biological resources. Since military missions and
9 resource management programs at Fort Jackson affect fish and wildlife habitat, current fish and
10 wildlife management activities are focused upon programs designed to create and enhance
11 habitats that are consistent with the military missions of the installation (Fort Jackson-DLE-
12 ENRD, 2004). Given the presence of three federally listed endangered species, Fort Jackson has
13 prepared ESMPs for each species while providing for training readiness and other mission
14 requirements of Fort Jackson.

15 **Alternative 1—Implement Force Reductions**

16 Implementing force reductions under Alternative 1 would result in beneficial impacts to
17 biological resources and habitats within Fort Jackson. The force reductions are not expected to
18 have a negative impact, unless the personnel that currently manage and control these crucial
19 programs are part of the reduction (Fort Jackson, 2014a). The Army, however, is committed to
20 ensuring that personnel cuts will not result in non-compliance with natural resources regulations.
21 Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would
22 ensure that adequate staffing remains so that the installation would comply with all mandatory
23 environmental regulations.

24 **4.13.9 Wetlands**

25 **4.13.9.1 Affected Environment**

26 Fort Jackson contains numerous wetlands and waters. Several references within the INRMP state
27 there are approximately 5,250 acres of wetlands on Fort Jackson (Fort Jackson, 2013; U.S.
28 Army, 2008). Using data from the NWI (USFWS, 2010) and U.S. Army documents (U.S. Army,
29 2008), Fort Jackson contains palustrine forested wetlands, palustrine scrub-shrub wetlands,
30 palustrine emergent wetlands, freshwater ponds and lakes, and riverine systems. The majority of
31 wetlands on Fort Jackson are classified as palustrine forested wetlands and are likely bottomland
32 hardwood and softwood forests adjacent to streams and creeks (U.S. Army, 2008).

1 **4.13.9.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts are anticipated under the No Action Alternative on Fort Jackson. Impacts
4 to wetlands from any current projects under construction would have already been assessed and,
5 if required, been properly permitted and mitigated. Additionally, activities that occur in range
6 impact areas and landing zones would continue at current levels, resulting in minimal impacts to
7 wetlands. Under the No Action Alternative, Fort Jackson would maintain its current management
8 plan for wetlands which includes disallowing wheeled or tracked vehicles from operating in
9 wetlands, cutting vegetation during dry periods and, to the extent practicable, not authorizing fill
10 material in wetlands (U.S. Army, 2007).

11 **Alternative 1—Implement Force Reductions**

12 Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated.
13 A force reduction at Fort Jackson would mean that range impact areas and landing zones would
14 be less utilized. Soil would be less disturbed from base activities and training exercises and
15 vegetation would suffer less denuding which would further minimize the potential for sediment
16 to run off into wetlands. Wetlands that are currently degraded would have time to regenerate, and
17 their functions and values would begin to restore.

18 Adverse impacts to wetlands could conceivably occur if force reductions decreased
19 environmental staffing levels to a point where environmental compliance could not be properly
20 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
21 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
22 realized at Fort Jackson, the Army would ensure that adequate staffing remains so that mandated
23 environmental requirements would continue to be met.

24 **4.13.10 Water Resources**

25 **4.13.10.1 Affected Environment**

26 **Surface Water/Watersheds**

27 The creeks, streams, lakes, and ponds within the Fort Jackson boundaries are part of the Coastal
28 Plain Province. Typical of this region the waters gently flow in a south-southeasterly direction
29 towards the Atlantic Ocean and show linear branching patterns within wide valleys. The four
30 main systems on the installation are Colonels Creek, Gills Creek, Wildcat Creek, and Cedar
31 Creek and Mill Creek drainages (U.S. Army, 2008). Several tributaries on the east side of the
32 installation, including Buffalo Creek and Bee Branch, drain to Colonels Creek which flows
33 southeast eventually joining the Wateree River outside the installation boundaries. Within the
34 northwest portion of the installation, Gills Creek flows in a southwesterly direction collecting
35 drainage from Bynum Creek, Rose Creek, Rowell Creek, and Mack Creek before its confluence

1 with the Congaree River. Wildcat Creek drains the southwestern portion of the installation,
2 meeting Gills Creek outside the installation. Mill Creek and Cedar Creek are the major surface
3 waters in the southern area of the installation.

4 Fort Jackson contains 25 lakes and ponds covering approximately 427 acres (U.S. Army, 2008).
5 Sizes range from 0.5 to 173 acres however most are smaller than 35 acres. At 173 acres, Weston
6 Lake is the largest on the installation and supports recreational pursuits. Fisheries management
7 uses are in place for Big Twin Lake, Lower Barstow Pond, Odom Pond, Old Heises Pond, South
8 Pond, Upper Barstow Pond, and Upper Legion Lake (U.S. Army, 2008). Uses for the other
9 waterbodies include aesthetics, recreation, waterfowl habitat, and golf course irrigation.

10 **Groundwater**

11 The Tuscaloosa Formation is the main aquifer providing groundwater within the Fort Jackson
12 boundaries in addition to several streamside alluvial deposits (U.S. Army, 2008). This formation
13 occurs mainly at the surface under both confined and unconfined conditions due to the
14 unconsolidated clay and sand substrates. At deeper layers of the unconfined aquifer it occurs
15 under water table conditions. Artesian conditions also exist at depths of 100 to 250 feet due to
16 impermeable layers of clay over more permeable sand zones (U.S. Army, 2008, 2009).

17 Although groundwater concentrations of iron and manganese may sometimes exceed
18 groundwater quality standards, overall the groundwater quality at the installation is thought to be
19 excellent and can be used as potable water (U.S. Army, 2008, 2009). The concentration of total
20 dissolved solids within the groundwater usually falls below 50 milligrams per liter which does
21 not exceed drinking water contaminant levels (South Carolina DHEC, 2009; U.S. Army, 2008).

22 **Water Supply**

23 The Broad River and Lake Murray supply potable water for the cities of Columbia and Fort
24 Jackson. The Columbia Canal Water Treatment Plant and the Lake Murray Water Treatment
25 Plant treat raw surface water from the Broad River and Lake Murray, respectively. The treatment
26 plants have a combined capacity of 125 mgd. Fort Jackson receives its water from the city of
27 Columbia and in the late-2000s had a maximum daily volume allotment of approximately 6.5
28 mgd while only using approximately an average of 1.88 mgd (U.S. Army, 2008, 2009).

29 Over 380,000 linear feet of water mains and laterals constitute the potable water distribution
30 system serving the cantonment area (USACE, 2006). Following treatment at one of the treatment
31 plants, water is held in a 2.1 million gallon elevated storage tank within the cantonment area
32 (U.S. Army, 2008). Other areas, such as the training ranges and the Weston Lake Recreation
33 Area, receive potable water from six wells fitted with pressurization and disinfection systems.

1 **Wastewater**

2 Wastewater collection and distribution is provided by approximately 324,270 linear feet of lines
3 and seven lift stations (USACE, 2006). The wastewater collection system on Fort Jackson was
4 contracted to Palmetto States Utility Service for 50 years in 2008 (U.S. Army, 2008). Vitreous
5 clay pipes and polyvinyl-chloride pipes of 2 to 16 inches in diameter collect wastewater within
6 the cantonment area of the installation and transfer it to the city-owned Columbia Metropolitan
7 WWTP outside the installation. The treated wastewater is eventually released into the Congaree
8 River. With a 60 mgd capacity this WWTP used approximately 3.2 mgd (USACE, 2006) during
9 normal usage and two-thirds during peak usage during the mid-2000s (U.S. Army, 2008).
10 Therefore the current system is capable of handling the existing and future wastewater treatment
11 needs of the Fort Jackson service area (U.S. Army, 2008). Other wastewater systems include a
12 septic tank and tile field to replace the old Weston Lake WWTP east of the cantonment area,
13 chemical toilets for the training ranges, and a replacement wastewater collection system for the
14 recreation area. The sanitary sewer system for the installation is separate from the stormwater
15 system (U.S. Army, 2008; USACE, 2006).

16 **Stormwater**

17 The stormwater collection and distribution infrastructure within developed areas of Fort Jackson
18 includes storm sewers, inlets, manholes, and culverts. Undeveloped areas make use of the
19 numerous natural drainage ways present as well as man-made drainage swales. Wildcat Creek
20 receives most of the stormwater runoff from the developed cantonment area, however. the
21 tributaries throughout the installation also receive stormwater. Collected stormwater is held in
22 lakes and floodplain areas. The stormwater system for the installation is separate from the
23 sanitary sewer system (U.S. Army, 2008). The installation has two general permits for
24 stormwater discharges—Small MS4 and Industrial—under the South Carolina NPDES (Fort
25 Jackson, 2014c).

26 **Floodplains**

27 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
28 and any adverse impacts from the use or modification of floodplains when there is a feasible
29 alternative. Specifically, Section 1 of E.O. 11988, *Floodplain Management*, states that an agency
30 is required to “reduce the risk of flood loss, to minimize the impact of floods on human safety,
31 health, and welfare, and to restore and preserve the natural and beneficial values served by
32 floodplains in carrying out its responsibilities.” FEMA Flood Insurance Rate Maps indicate that
33 shoreline and land adjacent to the all major creeks on the installation are within Zone A, or
34 special flood hazard areas within the 100-year flood zone (FEMA, 2010b). These areas are
35 subject the 100-year flood, or the flood that has a 1 percent chance of being equaled or exceeded
36 in any given year.

1 **4.13.10.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts to water resources would continue under the No Action Alternative.
4 Training activities would continue to occur at Fort Jackson ranges and courses as would potential
5 disturbance to and sedimentation of surface water resources. Fort Jackson would continue to
6 strive to meet federal and state water quality criteria, drinking water standards, and floodplain
7 management requirements. Stormwater management would continue under the existing NPDES
8 permits as would adherence to state stormwater requirements and BMP guidelines. Current water
9 resources management and compliance activities would continue to occur under this alternative.

10 **Alternative 1—Implement Force Reductions**

11 Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A
12 force reduction would result in fewer training exercises thereby decreasing the potential for
13 surface water disturbance and sedimentation. The force reduction would reduce potable water
14 demand and wastewater treatment allowing additional capacity for other users. Implementation
15 of Alternative 1 would reduce the amount of treated wastewater discharged to the receiving
16 surface water source. Adverse water resources impacts could conceivably occur if personnel cuts
17 prevented environmental compliance from being implemented. The Army is committed to
18 ensuring that personnel cuts will not result in non-compliance with water quality regulations.
19 Even if the full end-strength reductions were to be realized at Fort Jackson, the Army would
20 ensure that adequate staffing remains so that mandated environmental requirements would
21 continue to be met and implemented. Force reduction at Fort Jackson is not anticipated to cause
22 violations of federal and state water quality regulations and discharge permits. Current water
23 resources management and compliance activities would continue to occur under this alternative.

24 **4.13.11 Facilities**

25 **4.13.11.1 Affected Environment**

26 Of the 52,313 acres at Fort Jackson, slightly more than 5,800 acres are classified as improved
27 grounds. The remaining 46,500 acres are Army-owned training areas, including more than 100
28 ranges and field training sites. Fort Jackson contains about 1,674 structures, a majority of which
29 have been built in the last 35 years (U.S. Army, 2008).

30 Fort Jackson is the Army's primary location for basic combat training. In addition, Fort Jackson
31 is home to the U.S. Army Soldier Support Institute, the Armed Forces Army Chaplaincy Center
32 and School, and the National Center for Credibility Assessment (formerly the DoD Polygraph
33 Institute). It also is home to the Army's Drill Sergeant School, which trains all active and
34 Reserve instructors.

1 Soldiers, civilians, retirees, and Family members make up the Fort Jackson community. More
2 than 3,500 active component Soldiers and their 12,000 Family members are assigned to the
3 installation. About one-third of those Soldiers and Families live in housing on the installation
4 (Fort Jackson, 2014b). The cantonment includes a wide variety of facilities that provide the
5 elements necessary for a complete community including: Family housing, elementary schools,
6 troop housing, a variety of community and commercial services including the post exchange,
7 commissary, bank and credit union, Class VI stores, Officers Club, Army Community Hospital,
8 and various indoor recreational facilities. Industrial activities, such as public works, logistics, and
9 maintenance, are also located within the cantonment (U.S. Army, 2008).

10 **4.13.11.2 Environmental Effects**

11 **No Action Alternative**

12 No impacts are anticipated under the No Action Alternative. Fort Jackson would continue to use
13 its existing facilities to support its tenants and missions.

14 **Alternative 1—Implement Force Reductions**

15 Minor impacts to Fort Jackson's facilities are anticipated as a result of implementing force
16 reductions under Alternative 1. Force reductions under Alternative 1 would reduce requirements
17 for facilities and affect space utilization across the installation. Construction or expansion
18 projects that had been programmed in the future may not occur or could be downscoped.
19 Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some
20 cases, this could require modification of existing facilities. Some beneficial impacts are also
21 expected as a reduction in the frequency of training exercises would be beneficial for
22 maintaining ranges and training areas and thereby improving sustainability of those facilities. A
23 decrease in training operational tempo and related heavy equipment use would be beneficial for
24 the maintenance and sustainability of roadways and off-road maneuver areas. As discussed in
25 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
26 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
27 therefore, potential impacts from these activities are not analyzed.

28 **4.13.12 Socioeconomics**

29 **4.13.12.1 Affected Environment**

30 Fort Jackson is located on the northwestern edge of the Coastal Plain Province in Richland
31 County, South Carolina. The ROI for Fort Jackson includes those areas that are generally
32 considered the geographic extent to which the majority of the installation's Soldiers, Army
33 civilians, and contractor personnel and their Families reside. The ROI includes Calhoun,
34 Fairfield, Kershaw, Lee, Lexington, Richland, and Sumter counties. This section provides a
35 summary of demographic and economic characteristics within the ROI.

1 **Population and Demographics**

2 Using 2013 as a baseline, Fort Jackson has a total working population of 32,391 consisting of
 3 active component Soldiers, Army civilians, students and trainees, other military services, and
 4 civilians and contractors. Of the total working population, 5,735 were permanent party Soldiers
 5 and Army civilians. The population that lives on Fort Jackson consists of 1,044 Soldiers and
 6 their 3,074 Family members, for a total on-installation resident population of 4,118 (Fort
 7 Jackson, 2014c). The portion of the active component Soldiers, Army civilians, and Family
 8 members living off the installation is estimated to be 11,812.

9 Fort Jackson is the home to Basic Combat Training for Soldiers. Students are based at Fort
 10 Jackson for the expected length of their assigned curriculum, which may range from 1 week to
 11 16 weeks or more. Fort Jackson averages approximately 21,800 students assigned for training
 12 and can accommodate up to 62,000 students in on-installation housing (Motosicky, 2014). Any
 13 remaining students would be accommodated in local lodging facilities or rental units.

14 In 2012, the ROI had a total population of 892,000, a 2 percent decrease from 2010. Richland
 15 County represents the greatest share of the population in the ROI while Calhoun County has the
 16 smallest population of the counties in the ROI (U.S. Census Bureau, 2012a). Between 2010 and
 17 2012, the population increased in Kershaw, Richland, Lexington, and Sumter counties, while
 18 population decreased in Calhoun, Fairfield, and Lee counties during this period (Table 4.13-3).
 19 The 2012 racial and ethnic composition of the ROI is presented in Table 4.13-4.

20 **Table 4.13-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Calhoun County, South Carolina	14,928	-1.7
Fairfield County, South Carolina	23,338	-2.6
Kershaw County, South Carolina	62,200	+1.0
Lee County, South Carolina	18,632	-3.1
Lexington County, South Carolina	270,272	+3.0
Richland County, South Carolina	393,853	+2.4
Sumter County, South Carolina	108,127	+0.6

1 **Table 4.13-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of South Carolina	68.4	28.0	0.5	1.4	1.6	5.3	64.0
Calhoun County, South Carolina	55.2	42.8	0.6	0.3	1.0	3.2	52.9
Fairfield County, South Carolina	39.6	58.6	0.3	0.3	1.2	1.9	38.3
Kershaw County, South Carolina	72.4	25.1	0.4	0.6	1.4	4.1	69.0
Lee County, South Carolina	34.6	63.9	0.3	0.4	0.8	2.1	33.2
Lexington County, South Carolina	81.3	14.9	0.5	1.6	1.6	5.7	76.4
Richland County, South Carolina	48.3	46.8	0.4	2.4	2.0	5.0	44.6
Sumter County, South Carolina	49.4	47.0	0.4	1.2	1.8	3.6	46.7

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 In 2012, the total employed labor force in the ROI was 409,242 (U.S. Census, 2012b). Between
 5 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in
 6 all of the counties in the ROI, except Fairfield, Kershaw, and Lexington counties (U.S. Census,
 7 2000 and 2012b). Employment, median home value, household income, and poverty levels are
 8 presented in Table 4.13-5.

1 **Table 4.13-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of South Carolina	2,031,724	+9.2	\$137,400	\$44,623	13.2
Calhoun County, South Carolina	6,452	+18.1	\$98,400	\$39,843	11.6
Fairfield County, South Carolina	9,577	-1.8	\$92,500	\$35,452	14.0
Kershaw County, South Carolina	26,457	-5.0	\$113,600	\$44,068	17.3
Lee County, South Carolina	6,359	+5.4	\$66,800	\$27,755	12.6
Lexington County, South Carolina	127,789	-15.3	\$138,900	\$53,644	23.4
Richland County, South Carolina	188,855	+15.3	\$150,800	\$48,420	9.2
Sumter County, South Carolina	43,753	-3.4	\$105,400	\$40,726	14.6

2 Information regarding the workforce by industry for each county within the ROI was obtained
 3 from the U.S. Census Bureau. Information presented below is for the employed labor force.

4 ***Calhoun County***

5 According to the U.S. Census Bureau, the educational services, and health care and social
 6 assistance sector accounts for the greatest share of total workforce in Calhoun County (21
 7 percent). Manufacturing is the second largest employment sector (15 percent), followed by retail
 8 trade (10 percent). The Armed Forces account for less than 1 percent of the county's workforce.
 9 The remaining 10 industries employ 54 percent of the workforce (U.S. Census Bureau, 2010).

10 Major employers in Calhoun County include DAK Americas, Devro Inc., and Zeus Industrial
 11 Products, Inc. (Central SC Alliance, 2013).

12 ***Fairfield County***

13 According to the U.S. Census Bureau, the educational services, health care and social assistance
 14 sector accounts for the greatest share of total workforce in Fairfield County (19 percent).
 15 Manufacturing is the second largest employment sector (18 percent), followed by public
 16 administration (10 percent). There is a negligible population of employed Armed Forces in

1 Fairfield County. The remaining 10 industries employ 53 percent of the county's workforce
2 (U.S. Census Bureau, 2010).

3 Major employers in Fairfield County include V.C. Summer Nuclear station, Ben Arnold
4 Beverage Co., and Lang Mekra North America (Central SC Alliance, 2013).

5 **Kershaw County**

6 According to the U.S. Census Bureau, the educational services, and health care and social
7 assistance sector accounts for the greatest share of total workforce in Kershaw County (20
8 percent). Manufacturing is the second largest employment sector (16 percent), followed by retail
9 trade (12 percent). The Armed Forces account for less than 1 percent of the county's workforce.
10 The remaining 10 industries employ 52 percent of the workforce (U.S. Census Bureau, 2010).

11 Major employers include Kershaw County School District, Kershaw Health, and Invista (Central
12 SC Alliance, 2013).

13 **Lee County**

14 According to the U.S. Census Bureau, the educational services, health care and social assistance
15 sector accounts for the greatest share of total workforce in Lee County (24 percent).
16 Manufacturing is the second largest employment sector (17 percent), followed by retail trade (12
17 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
18 remaining 10 industries employ 47 percent of the county's workforce (U.S. Census
19 Bureau, 2010).

20 Major employers in Lee County include McCoy Memorial Nursing Home, South Atlantic
21 Canners Coca Cola, and Rexam (Central SC Alliance, 2013).

22 **Lexington County**

23 According to the U.S. Census Bureau, the educational services, and health care and social
24 assistance sector accounts for the greatest share of total workforce in Lexington County (21
25 percent). Retail trade is the second largest employment sector (11 percent), followed by
26 manufacturing (11 percent). The Armed Forces account for less than 1 percent of the county's
27 workforce. The remaining 10 industries employ 57 percent of the workforce (Census
28 Bureau, 2010).

29 Major employers in Lexington County include Lexington Medical Center, Lexington County
30 schools, and SCANA (Lexington County Department of Finance, 2012).

31 **Richland County**

32 According to the U.S. Census Bureau, the educational services, health care and social assistance
33 sector accounts for the greatest share of total workforce in Richland County (25 percent). Retail

1 trade is the second largest employment sector (11 percent), followed by arts, entertainment, and
2 recreation, and accommodation and food services sector (9 percent). The Armed Forces account
3 for 5 percent of the county's workforce. The remaining 10 industries employ 55 percent of the
4 workforce (U.S. Census Bureau, 2010).

5 Major employers in Richland County include Fort Jackson, McEntire Joint National Guard
6 Airbase, and Palmetto Health Alliance (Richland County Finance Department, 2013).

7 **Sumter County**

8 According to the U.S. Census Bureau, the educational services, health care and social assistance
9 sector accounts for the greatest share of total workforce in Sumter County (22 percent).
10 Manufacturing is the second largest employment sector (17 percent), followed by Retail trade is
11 the second largest employment sector (12 percent). The Armed Forces account for 4 percent of
12 the county's workforce. The remaining 10 industries employ 49 percent of the workforce (U.S.
13 Census Bureau, 2010).

14 Major employers in Sumter County include Shaw AFB, Coleman Federal Prison, and Sumter
15 District schools (Sumter County Chamber of Commerce, 2010).

16 **Housing**

17 In August 2008, Family housing on Fort Jackson was privatized and is managed by Balfour
18 Beatty Communities. Currently, 850 Family housing units are available for officers and enlisted
19 personnel on the installation. Included in the limited inventory are 779 enlisted homes and 71 for
20 officers (Motosicky, 2014). Some units are reserved for use by officer Families and some units
21 are for the Families of junior and senior enlisted personnel. The large majority of the
22 installation's Family housing is located in the eastern portion of the cantonment. The Family
23 housing units consists of 610 newly constructed three- and four-bedroom homes and 240 enlisted
24 legacy homes, which include two, three, and four bedrooms. These homes are situated within
25 eight neighborhoods and a Community Center. Family quarters are assigned to occupants on the
26 basis of Family structure.

27 Unaccompanied officer housing is located adjacent to the Soldier Support Institute (Building 10-
28 300), Kennedy Hall (Building 2785), the Palmetto Lodge (Building 6000), and at Legion
29 Landing, a complex of six small cottages located adjacent to Legion Lake. This housing includes
30 guest housing, transient quarters, and bachelor officers' quarters/visiting officers' quarters
31 housing. Barracks at Fort Jackson include spaces for both assigned and visiting personnel. Most
32 of the installation's older barracks are located in the "rolling pin" barracks in the western portion
33 of the cantonment. There are currently 248 Soldiers living in the barracks, the majority of which
34 are Army (Motosicky, 2014).

1 Fort Jackson has six “starship” barracks and three “starbases” used to house basic trainees. Four
2 of the six starships have recently been refurbished. The other two are currently under renovation.
3 Two of the three starbases are new (one completely finished and the final phase of one scheduled
4 for completion in FY 2015). These nine barracks are located in the northwestern portion of the
5 cantonment. Each starship/starbase has the capacity to house approximately one battalion of
6 trainees. In addition, one battalion of trainees is housed in rolling pin barracks adjacent to
7 Magruder Avenue. One battalion of the installation's Advanced Individual Training (AIT)
8 students are temporarily billeted in rolling pin barracks awaiting completion of new facilities in
9 the summer of FY 2014. Fifteen companies of basic training Soldiers are housed in
10 relocatable facilities.

11 The Freddie Stowers Complex, FSBP 2020, constructed in 1999 in the southern portion of the
12 cantonment is for bona fide single Soldiers in the ranks of E1–E5. The construction of this
13 complex created 576 new enlisted spaces. The complex consists of 8 sleeping buildings
14 consisting of the 576 spaces and 2 community buildings and includes offices for the First
15 Sergeants Barracks Program (FSBP) 2020 NCOs (administrative spaces), dayrooms, game rooms
16 and laundry facilities.

17 A Basic Combat Trainee Complex is located on the northwestern end of Hampton Parkway.
18 Basic Combat Trainee relocatables are adjacent to the Basic Combat Trainee Complex and also
19 house basic trainees. Basic Combat Trainee Complex II and Basic Combat Trainee Complex III
20 are located along Golden Arrow Road. Construction on Basic Combat Trainee Complex II and
21 Basic Combat Trainee Complex III Phase 1 is complete. Construction on Basic Combat Trainee
22 Complex III Phase 2 is currently underway.

23 **Schools**

24 Fort Jackson has two on-installation elementary schools: Pierce Terrace Elementary School,
25 located in the southern portion of the Family housing area; and C.C. Pinckney Elementary
26 School, located on Chestnut Road east of the Family housing area. The current average daily
27 attendance at the two elementary schools combined is 545 students. Middle and high school
28 students attend off-installation schools. All of Fort Jackson’s schools are authorized under
29 Section 2164 of Title 10, U.S. Code as part of DoD School System, commonly referred to as the
30 Domestic Dependent Elementary and Secondary Schools. In 1996, Fort Jackson’s schools
31 became part of a consolidated school district for the state of South Carolina.

32 There are seven public school districts serving the Columbia metropolitan area and the
33 surrounding counties. In addition, there are five Christian-affiliated schools located within the
34 vicinity of Fort Jackson and the city of Columbia.

35 Richland County School District One encompasses 482 square miles of Richland County,
36 including the city of Columbia, the city of Forest Acres, the town of Eastover, and rural areas of

1 Richland County. The district is divided geographically into seven school clusters, each
2 containing one high school, one or more middle schools, and several elementary schools. In total,
3 the district operates 52 schools. Most Army students attend school in Richland School
4 District Two.

5 The Richland County School District One provides educational instruction to approximately
6 23,000 students in pre-kindergarten through grade 12. The Richland Two School District has
7 approximately 26,000 students in pre-kindergarten through grade 12. The district receives
8 Federal Impact Aid to help offset the cost of educating the dependent children of military
9 personnel assigned to Fort Jackson.

10 **Public Health and Safety**

11 ***Police Services***

12 General law enforcement on Fort Jackson is the responsibility of the Fort Jackson DES. The
13 military authorities have off-installation jurisdiction over offenses committed by military
14 personnel under the Uniform Code of Military Justice. DES also performs fish and wildlife law
15 enforcement by means of the Game Warden Section. The military law enforcement authorities
16 coordinate their off-installation activities with local law enforcement authorities on a case-by-
17 case basis.

18 The city of Columbia Police Office, the Richland County Sheriff's Department, and the
19 Lexington County Sheriff's Department provide law enforcement for their respective
20 jurisdictions in the areas surrounding Fort Jackson. Off-installation police have no jurisdiction on
21 the installation and the Army police have no jurisdiction off-installation, with the exception of
22 offenses committed by Army personnel.

23 ***Fire and Emergency Services***

24 The Fort Jackson Fire Department provides fire protection services to Fort Jackson that include
25 structural firefighting, fire prevention services, technical rescue, emergency medical support and
26 a Hazardous Material Response Team in the event of an accidental hazardous material spill.
27 Wildland fire suppression is performed by the DPW, ENV, and Forestry Branch. The installation
28 has mutual aid agreements with many of the surrounding fire departments, who provide critical
29 back-up should the need arise.

30 ***Medical Facilities***

31 Moncrief Army Community Hospital is Fort Jackson's primary medical service facility. The
32 acute care facility offers a wide range of medical and dental services to active component
33 personnel, Family members, and Army retirees. Emergency room services, while not available at
34 Moncrief Army Community Hospital, are provided by off-installation hospitals. McWethy
35 Clinic, located adjacent to the hospital, provides health care for Soldiers in-training, Soldiers on

1 TDY, and reserve component personnel on drill or annual training status. The Moncrief Medical
2 Home is Army Medicine's new approach to providing care in Northeast Columbia.

3 Off-installation medical facilities provide a comprehensive range of primary and secondary
4 health care within the area. In addition to the Moncrief Army Community Hospital, there are
5 several other hospitals within the surrounding seven-county area. The largest of these include the
6 649-bed Palmetto Richland Memorial Hospital in Columbia, and the 489-bed Palmetto Baptist
7 Medical Center Columbia (U.S. Army, 2008). Also within the city of Columbia are 13
8 additional hospitals.

9 Tertiary medical care is available in Columbia less than 2 minutes from Fort Jackson.
10 Professional health care services are becoming more concentrated in Lexington County, with the
11 number of physicians and dentists within the area increasing substantially during the 1990s.

12 **Family Support Services**

13 ACS is a Soldier and Family service center that offers a comprehensive array of programs and
14 services dedicated to maintaining the readiness of Soldiers, Families and communities by
15 fostering self-reliance, resiliency, and stability. It is the commander's principal Family readiness
16 agency, providing comprehensive, coordinated, and responsive services that support readiness of
17 Soldiers, civilian employees and their Families during peace and war. ACS programs cover
18 mission areas in money matters; home and Family life; making a move; work and careers;
19 learning for life; Army basics; managing deployment and separations; and getting involved in the
20 community. The ACS programs offered are the following: Employment Readiness Program;
21 Exceptional Family Member Program; Family Advocacy Program; Financial Readiness
22 Program; Mobilization and Deployment, designed to guide and educate Soldiers and Families on
23 how to manage the complex processes of deployment and reunion; Relocation Readiness
24 Program; and Survivor Outreach Program.

25 **Recreation Facilities**

26 A wide variety of on-installation recreational facilities are available to Army personnel and their
27 Families, and to civilian employees on a space-available basis. The installation has a four-field
28 softball complex, two 18-hole golf courses, a driving range, and numerous running tracks. In
29 addition, there are numerous playgrounds and multiple-use courts associated with the schools
30 and Family housing areas within the cantonment. Other outdoor recreational facilities include
31 8 multi-court facilities, including basketball, volleyball, and tennis courts; 3 little league baseball
32 fields and youth soccer fields; Lee Road Soccer Complex; Semmes Road Tennis Courts;
33 18 basketball courts; 2 outdoor pools; 10 handball courts; and 10 baseball/softball fields.

34 Additionally, Fort Jackson uses Heise Pond, Twin Lakes, and Weston Lake for various active
35 and passive water sports. The Marion Street Station is the site of the Hunting and Fishing Center
36 and offers recreational equipment rental and hunting and fishing licenses. Twin Lakes has picnic

1 shelters and playgrounds. Weston Lake has facilities available for boating, canoeing, camping,
2 and numerous other outdoor activities.

3 Indoor recreational facilities include Knight Indoor Pool, Century Lanes bowling alley, Perez
4 Physical Fitness Center, Thomas Lee Hall Library, Fort Jackson Museum, a community
5 activities center, two theaters, an arts and crafts center, auto crafts shop, youth activities center,
6 and four gymnasiums.

7 **4.13.12.2 Environmental Effects**

8 **No Action Alternative**

9 The operations at Fort Jackson would continue to benefit regional economic activity. No
10 additional impacts to housing, public and social services, public schools, public safety, or
11 recreational activities are anticipated.

12 **Alternative 1—Implement Force Reductions**

13 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
14 significant impact to socioeconomic resources. The description of impacts to the various
15 components of socioeconomics is presented below.

16 ***Population and Economic Impacts***

17 Alternative 1 would result in the loss of 3,071¹⁸ Army positions (2,363 Soldiers and 708 Army
18 civilians), each with an average annual income of \$46,760 and \$56,859, respectively. In addition,
19 this alternative would affect an estimated 4,662 Family members (1,714 spouses and 2,948
20 dependent children). The total population of Army employees and their Families directly
21 affected under Alternative 1 is projected to be 7,733.

22 In accordance with the EIFS analysis, significant impact is defined as a situation when the
23 forecasted economic impact value falls outside the historical positive or negative ranges. Table
24 4.13-6 shows the deviation from the historical average that would represent a significant change
25 for each parameter. The last row summarizes the deviation from the historical average for the
26 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
27 by the EIFS model. Based on the EIFS analysis, changes in population in the ROI under
28 Alternative 1 fall outside the historical range and are categorized as a significant impact.
29 However, there would not be a significant impact to sales, employment, and income because the
30 estimated percentage change is within the historical range.

¹⁸ This number was derived by assuming the loss of 70 percent of Fort Jackson's Soldiers and 30 percent of the Army civilians.

1 **Table 4.13-6. Economic Impact Forecast System and Rational Threshold Value**
 2 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.3	+2.4	+1.5
Economic contraction significance value	-5.8	-3.8	-3.2	-0.5
Forecast value	-0.5	-0.6	-1.0	-0.7

3 Table 4.13-7 summarizes the predicted impacts to income, employment, and population of the
 4 reductions against the 2012 demographic and economic data. Whereas the forecast value
 5 provides a percent change from the historical average, the percentages in the following table
 6 show the economic impact as a percent of 2012 demographic and economic data. Although not
 7 in exact agreement with the EIFS forecast values, these figures show the same significance
 8 determinations as the EIFS predictions in the previous table.

9 **Table 4.13-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated impact estimates	-\$189,425,600	-3,427 (Direct)	-7,733
		-815 (Induced)	
		-4,242 (Total)	
Total 2012 ROI economics estimates	\$32,647,157,000	409,242	892,000
Percent reduction of 2012 figures	-0.6	-1.0	-0.9

10 Note: Sales estimates are not consistently available from public sources for all counties in the United
 11 States; therefore, the sales data for counties are not presented in this table. The estimated
 12 reduction in total sales from EIFS is described in the paragraphs below.

13 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 14 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 15 cumulative force reductions. Because of the maximum potential loss of 3,071 Soldiers and Army
 16 civilians under Alternative 1, EIFS estimates an additional 356 direct contract service jobs would
 17 also be lost. An additional 815 induced jobs would be lost due to the reduction in demand for
 18 goods and services within the ROI. The total reduction in employment is estimated to be 4,242, a
 19 reduction of 1 percent from the total employed labor force in the ROI of 409,242. Income is
 20 estimated to reduce by \$189.4 million, a 0.6 percent decrease in income in 2012.

21 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$286 million.
 22 Sales tax receipts to local and state governments would also decrease. The state and average
 23 local sales tax for South Carolina is 7.2 percent (Tax Foundation, 2014). To estimate sales tax
 24 reductions, information was utilized on the proportion of sales that would be subject to sales
 25 taxes on average across the county. According to the U.S. Economic Census, an estimated 16

1 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
2 Therefore, with an estimated reduction of \$286 million in sales, there would be an estimated
3 decrease in sales tax receipts of \$3.3 million.

4 Of the approximately 892,000 people (including those residing on Fort Jackson) who live within
5 the ROI, 3,071 Army employees and their estimated 4,662 Family members are predicted to no
6 longer reside in the area under Alternative 1, resulting in a population reduction of 0.87 percent.
7 This number likely overstates potential population impacts because some of the people no longer
8 employed by the Army would continue to live and work within the ROI, finding employment in
9 other industry sectors.

10 Students and trainees may have a substantial impact on the local economy through lodging,
11 eating, and shopping expenditures. Additionally, formal graduation ceremonies generate demand
12 for lodging and dining facilities when Family members attend. BCT graduations are a weekly
13 event, graduating 600-1,200 Soldiers per week; and 4,000–5,000 Family members attend these
14 weekly graduations. The impact to Fort Jackson's training missions cannot be determined until
15 after the Army completes its force structure decisions; therefore, analyzing the impact to those
16 missions is beyond the scope of this document.

17 **Housing**

18 The population reduction that would result under Alternative 1 would result in decreased demand
19 and increased housing availability on the installation and across the larger ROI, potentially
20 resulting in a slight decrease in median home values. While the housing market would
21 experience a change under Alternative 1, overall impacts would be minor given the large size of
22 the ROI.

23 **Schools**

24 Local school districts in the Fort Jackson ROI have constructed new schools and modernized
25 existing school facilities due to substantial population growth over the past decade. Under
26 Alternative 1, there would be decreased enrollment in schools on and off the installation. The
27 elementary schools on Fort Jackson and the Richland County School District Two are likely to
28 be most affected under Alternative 1.

29 The reduction of Soldiers on Fort Jackson would result in a loss of Federal Impact Aid dollars in
30 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
31 who are considered “federally connected” and attend district schools. Actual projected dollar
32 amounts cannot be determined at this time due to the variability of appropriated dollars from
33 year to year, and the uncertainty of the actual number of affected school-age children for Army
34 and civilian Families. Under Alternative 1, significant, adverse impacts to local schools districts
35 could potentially occur due to reduced enrollment and Federal Impact Aid, particularly to
36 Richland County School District Two, where students of Families living on Fort Jackson attend

1 school. School districts in the ROI would likely need fewer teachers and materials as enrollment
2 drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse impacts to
3 schools associated with Alternative 1 would be minor to significant depending on the reduction
4 in the number of military-connected students enrolled.

5 **Public Services**

6 The demand for law enforcement, medical care providers, and fire and emergency service
7 providers on the installation may decrease if Army Soldiers, Army civilians, and their Family
8 members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public
9 services could conceivably occur if personnel cuts were to substantially affect hospitals, military
10 police, and fire and rescue crews on the installation. These scenarios are not reasonably
11 foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or
12 civilian personnel, the Army is committed to meeting health and safety requirements. Overall,
13 minor impacts to public health and safety would occur under Alternative 1. The impacts to public
14 services are not expected to be significant because the existing service level for the installation
15 and the ROI would still be available.

16 **Family Support Services and Recreation Facilities**

17 Family Support Services and recreation facilities would experience reduced demand and use and
18 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
19 committed to meeting the needs of the remaining population on the installation. As a result,
20 minor impacts to Family Support Services and recreation facilities would occur under
21 Alternative 1.

22 **Environmental Justice and Protection of Children**

23 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
24 *Low-Income Populations*, states “each Federal agency shall make achieving environmental
25 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
26 and adverse human health or environmental effects of its programs, policies, and activities on
27 minority and low-income populations” (EPA, 1994). As shown in Table 4.13–4, the proportion
28 of minority populations is higher in Fairfield and Lee counties than the proportion in Kershaw
29 and Lexington counties and South Carolina as a whole. Because minority populations are more
30 heavily concentrated in Fairfield and Lee counties, the implementation of Alternative 1 has the
31 potential to result in adverse impacts to minority-owned and/or -staffed businesses if Soldiers
32 and Army civilians directly affected under Alternative 1 move to areas outside the ROI. Of the
33 counties within the ROI, only Lexington County has a higher proportion of populations living
34 below the poverty level when compared to the South Carolina average. Overall, although adverse
35 impacts to environmental justice populations might occur under Alternative 1, they would not
36 disproportionately affect these populations.

1 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
2 federal agencies are required to identify and assess environmental health and safety risks that
3 may disproportionately affect children and to ensure that the activities they undertake do not
4 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
5 were to be realized, the Army is committed to implementing required environmental compliance
6 and meeting the health and safety needs of the people associated with the installation, including
7 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
8 environmental health and safety risks to children within the ROI. Additionally, this analysis
9 evaluates the effects associated with workforce reductions only, and any subsequent actions on
10 the installation that may require ground-disturbing activities that have the potential to result in
11 environmental health and safety risks to children, such as demolishing vacant buildings, is
12 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
13 as appropriate.

14 **4.13.13 Energy Demand and Generation**

15 **4.13.13.1 Affected Environment**

16 Fort Jackson's energy needs are currently met by a combination of electric power and natural
17 gas. During the past decade, Congress has enacted major energy bills, and the President has
18 issued Executive Orders that direct federal agencies to address energy efficiency and
19 environmental sustainability. The federal requirements for energy conservation that are most
20 relevant to Fort Jackson include the following: the Energy Policy Act of 2005; E.O. 13423,
21 *Strengthening Federal Environmental, Energy, and Transportation Management*, issued January
22 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in*
23 *Environmental, Energy, and Economic Performance*, issued October 2009. Fort Jackson is
24 striving to comply with these requirements.

25 **Electricity**

26 South Carolina Electric & Gas Company supplies electricity to Fort Jackson. Electricity is
27 supplied to the installation's substation, and from the substation electricity is distributed through
28 a network of underground and above-ground lines (U.S. Army, 2008).

29 **Natural Gas**

30 South Carolina Electric & Gas Company supplies natural gas to Fort Jackson. The supply line is
31 a 10-inch, high-pressure main that enters the installation and extends to a meter. From the meter,
32 gas is fed into an on-installation, Fort Jackson-owned regulator and into the distribution system
33 which comprises a network of Fort Jackson-owned lines and regulator stations. South Carolina
34 Electric & Gas bills Fort Jackson for interruptible/low sulfur services. In the event of a service
35 interruption, the installation switches to No. 6 fuel oil at the central energy plants. A number of
36 other facilities have individual natural gas-powered boilers with a liquid petroleum gas backup
37 system at Central Energy Plant No. 2 (U.S. Army, 2008).

1 **4.13.13.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts are anticipated on energy demand. The continued use of outdated,
4 energy-inefficient facilities could hinder Fort Jackson's requirement to reduce energy
5 consumption. Some older facilities may require renovations to improve energy efficiency to
6 achieve federal mandate requirements.

7 **Alternative 1—Implement Force Reductions**

8 Minor, beneficial impacts to energy demand are anticipated because force reductions would
9 reduce the installation's overall demand for energy. The installation would also be better
10 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
11 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
12 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
13 these activities on energy demand are not analyzed.

14 **4.13.14 Land Use Conflicts and Compatibility**

15 **4.13.14.1 Affected Environment**

16 **Regional Setting**

17 Fort Jackson consists of 52,313 acres located in Richland County, South Carolina, within the city
18 limits of Columbia, the state's capital (U.S. Army, 2008). Columbia is located near the
19 geographic center of South Carolina, in an area known as the Central Midlands. With a
20 population of 320,677, Richland County is the largest county in the Central Midlands region both
21 in terms of area and population, and is the second most populated county in the state. The city of
22 Columbia has a population of 116,278, and serves as a large urban and commercial center for the
23 surrounding region (CMCOG, 2014).

24 Fort Jackson's mission is to conduct Basic Combat Training and AIT; train Drill Sergeants and
25 Cadre Leaders; and effectively transform civilians, train Soldiers and develop leaders. The
26 installation is the largest and most active IET Center in the U.S. Army, training 50 percent of the
27 Army's Basic Combat Training load and 60 percent of the women entering the Army each year
28 (Fort Jackson 2014). Fort Jackson is home to the U.S. Army Soldier Support Institute, the Armed
29 Forces Army Chaplaincy Center and School, and the National Center for Credibility Assessment
30 (formerly the DoD Polygraph Institute). It is also home to the Army's Drill Sergeant School,
31 which trains all active and Reserve instructors (U.S. Army, 2008).

32 **Land Use at Fort Jackson**

33 Of the 52,313 acres at Fort Jackson, slightly more than 5,800 acres are classified as improved
34 grounds, with the remaining 46,500 acres comprised of Army-owned training areas, including

1 more than 100 ranges and field training sites. The installation is surrounded by 3,000-foot sound
2 buffer areas adjacent to portions of the installation perimeter to mitigate any potential for
3 disturbance of noise-sensitive uses (Fort Jackson, 2013) Training activities and exercises, such as
4 general use training, range/impact area, and noise buffers, are the predominant land uses on Fort
5 Jackson (U.S. Army, 2008). Supporting uses are housed within the cantonment area.

6 Fort Jackson's cantonment area occupies approximately 5,500 acres in the southwestern corner of
7 the installation. Family housing and associated elementary schools are located in separate
8 adjacent areas on the eastern perimeter of the cantonment, while troop housing is located to the
9 north and west. A variety of community and commercial services are concentrated to the south
10 and west of the Family housing area, including the post exchange, commissary, bank and credit
11 union, Class VI stores, Officers Club, and various indoor recreational facilities. The Moncrief
12 Army Community Hospital is located to the west of the community center and north of Semmes
13 Lake. The Post Headquarters is centrally located on Jackson Boulevard. Industrial activities in
14 the form of public works, logistics, and maintenance are concentrated in the southern, central
15 portion of the installation east of Marion Avenue. The cantonment is surrounded on the north and
16 east by reserved land and buffer areas, which provide a transitional use to the installation's range
17 and training areas (Fort Jackson, 2013).

18 Training areas for general tactical and administrative training use are located throughout the
19 installation and consist of numbered individual sites ranging in size from a few to several
20 hundred acres. Training range and impact areas comprise a total of approximately 10,355 acres
21 of actual firing areas, attendant range fans and impact areas. Fort Jackson has a total of 20 ranges
22 which are used for Basic Rifle Marksmanship (BRM) training. Weapons fired on these ranges
23 are limited to M16 rifles, 9 millimeter and .45 caliber pistols and 12 gauge shotguns. Range 14 is
24 licensed to the South Carolina ARNG. The BRM ranges are arrayed around the perimeter of the
25 West Impact Area, which is roughly bounded by Dixie Road, Wildcat Road, Hartsville Guard
26 Road, and Golden Arrow Road. Despite the size of the impact area, approximately 90 percent of
27 the rounds fired are trapped by berms located approximately 300 meters from firing lines (U.S.
28 Army, 2008).

29 All live fire courses, with the exception of the Remagen hand grenade training range, are located
30 around the perimeter of the East Impact Area. The East Impact Area contains artillery and mortar
31 target zones and the range fans for the following ranges: Bastogne, Main Tank, Casablanca,
32 Cowpens, Anzio, Omaha, 1LT Joe V. Abernathy (RST-3), Kasserine Pass, and the Combat Pistol
33 Qualification Course, Camden Convoy Live Fire, and Argentan. Also associated with the East
34 Impact Area are 27 designated artillery and mortar firing points. Weapons fired into the East
35 Impact Area include small arms, machine guns, grenade launchers, light anti-armor weapons,
36 tank main gun, artillery, multiple launch rocket system, and mortars (U.S. Army, 2008).

1 **Surrounding Land Use and Planning**

2 Fort Jackson is bordered by the city of Columbia to the northwest, west and southwest; the
3 balance of the installation is adjacent to unincorporated portions of Richland County. Urbanized
4 development is located to the southwest of the installation between Leesburg and Garners Ferry
5 roads; to the west along Jackson Boulevard; and to the northwest within the Forest Acres and
6 Arcadia Lakes communities and in the vicinity of interstate highways I-20 and I-77. Dense
7 commercial development, such as the Columbia Mall, occurs in the vicinity of Two Notch Road
8 (U.S. Highway 1) and I-20, and strip commercial development characterizes land use along
9 Decker Boulevard, Two Notch Road, the intersection of Percival Road and I-77, and the
10 intersection of Forest Drive and I-77 outside Gate 2 (Fort Jackson, 2013).

11 Sesquicentennial State Park, a day-use facility with lake, hiking and biking trails, picnic and
12 camping facilities, is located northeast of the junction of I-20 and I-77 and is the largest public
13 land use adjacent to Fort Jackson. Most of the unincorporated areas adjacent to Fort Jackson are
14 characterized by low density or rural residential, agricultural, or open space uses. The 585-acre
15 Columbia-Greenville National Veteran's Cemetery is on land formerly held by Fort Jackson at
16 the northern end of the installation (Fort Jackson, 2013).

17 Several plans and studies have been conducted to guide growth and development in the city of
18 Columbia and Richland County. The Columbia Plan: 2018 has been prepared by the city of
19 Columbia to serve as a guidance document to envision and guide the growth and development of
20 the city of Columbia through 2018 (City of Columbia, 2008). The Land Use Element section of
21 the 2009 Richland County Comprehensive Plan provides informed recommendations for guiding
22 future growth and development and addresses existing land use patterns and identifies projected
23 future land use development within the county through 2019 (Richland County, 2009). The Fort
24 Jackson-McEntire JLUS is a cooperative planning effort between Fort Jackson and surrounding
25 communities to examine the way the installation operates and the development patterns of
26 nearby communities. The study's purpose is to ensure military missions continue without
27 degrading the safety and quality of life in surrounding communities, while also accommodating
28 local economic development. The plan attempts to balance growth opportunities with the
29 military's need to conduct critical training and readiness activities. The primary concern
30 identified within the JLUS is incompatible development and use around Fort Jackson.
31 Compatibility issues relate mainly to housing and manufactured housing units in noise areas east
32 and north-east of Fort Jackson (CMCOG, 2009).

33 **4.13.14.2 Environmental Effects**

34 **No Action Alternative**

35 Routine training and readiness activities at Fort Jackson produce various impacts, including
36 noise and the risk of aircraft accidents that can impact land uses surrounding the installation.
37 Under the No Action Alternative, existing operations at Fort Jackson as well as land use patterns

1 both within and surrounding the installation would continue unchanged. Fort Jackson would
2 continue to address potential land use incompatibilities through physical means such as noise
3 buffers; cooperative implementation of the goals outlined in the JLUS; and continued
4 implementation the 2009 IONMP that provides guidelines for noise management pertaining to
5 installation functions (Fort Jackson, 2013). The No Action Alternative is therefore not expected
6 to have a significant, adverse impact on existing land use within the installation or on
7 immediately surrounding or regional land use patterns. Land use compatibility impacts under the
8 No Action Alternative would be minor.

9 **Alternative 1—Implement Force Reductions**

10 Land use impacts associated with Alternative 1 would likely be beneficial due to reduced live
11 fire training and aircraft activity associated with force reductions. Potential force reductions
12 under Alternative 1 are not expected to have a negative impact on existing land use within the
13 installation or on immediately surrounding or regional land use patterns.

14 **4.13.15 Hazardous Materials and Hazardous Waste**

15 **4.13.15.1 Affected Environment**

16 **Hazardous Materials**

17 The management of hazardous materials and waste at Fort Jackson is conducted in accordance
18 with a Hazardous Substance Management Plan. The plan establishes procedures and policies and
19 assigns responsibilities associated with the generation, handling, management, and disposition of
20 hazardous material and hazardous waste at Fort Jackson. The policies and procedures outlined in
21 the plan are consistent with the requirements of RCRA; the South Carolina Hazardous Waste
22 Management Act; and other applicable federal, state, and local regulations (Fort Jackson DPW,
23 2007). Commonly used hazardous materials at Fort Jackson include paints, adhesives, sealants,
24 fuels, antifreeze, oil, greases, other lubricants, and solvents (USACE, 2006).

25 Fort Jackson owns eight active regulated USTs under RCRA. These include seven at the service
26 stations (Buildings 4522 and 4120) and one at Moncrief Army Community Hospital (Building
27 4500) to serve the emergency generator. The service-station USTs are constructed of double-
28 walled fiberglass with double-walled underground piping. These tanks are equipped with
29 electronic inventory monitoring and spill and overflow protection. The hospital tank is
30 cathodically protected and exempt from leak protection requirements because it contains fuel for
31 an emergency generator. Waste oil generated on the installation is stored in several facilities near
32 generation points and is removed by an approved contractor. The ISC Plan details spill
33 prevention and procedures for responding to accidental releases of petroleum-based products,
34 hazardous materials, and hazardous wastes (U.S. Army, 2008). If abandoned USTs are
35 discovered at Fort Jackson, the tanks are removed and the subsurface soil is tested. If there is no

1 contamination, the removal documentation is archived. If the subsurface is contaminated, the
2 incident is referred to the IRP manager for site assessment.

3 **Hazardous Waste Treatment, Storage, and Disposal**

4 The Hazardous Substance Management Plan provides proper characterization and disposal
5 methods for potential hazardous waste.

6 Fort Jackson has received a RCRA Part B permit from the South Carolina Department of Health
7 and Environmental Control for identification and corrective action for (SWMUs) and Areas of
8 Concern. The former waste storage facility at Building 1916 has been demolished. Facility
9 inspections are conducted each year by South Carolina Department of Health and Environmental
10 Control and every 4 to 5 years by EPA.

11 Activities that generate hazardous waste must store the waste at a satellite accumulation area.
12 The waste in these satellite areas must be moved to a 90-day container storage area within 3 days
13 (72 hours) after the 55-gallon limit (or 1 quart of acute hazardous waste) is accumulated. Once
14 the limit for the satellite accumulation area has been reached hazardous waste is turned in to the
15 Environment Department and stored in the <90-day container storage area in the waste storage
16 building (Building 2568) for pick up for disposal at a permitted off-installation facility.

17 Hazardous waste is turned into the Defense Logistics Agency Disposition Services Jackson for
18 storage prior to disposal by a contractor at a permitted off-installation facility (U.S. Army, 2008).

19 Prior to disposal, hazardous material/waste is screened for reutilization, transfer, donation, or
20 sale. Hazardous material that fails this screening and is determined to be hazardous waste is
21 taken to Building 2568 for management and storage prior to removal from the installation. Fort
22 Jackson uses contractors for the off-installation treatment, storage, and/or disposal of hazardous
23 waste at permitted facilities. Fort Jackson has implemented hazardous waste minimization
24 measures that have succeeded in continual reductions in the quantity of hazardous waste shipped
25 off the installation.

26 **Hazardous Waste Investigation and Remediation Sites**

27 Military operations have been ongoing at Fort Jackson for more than 80 years. During that time,
28 the industrial operations have grown in support of the training programs. Former industrial
29 activities generated wastes that were stored, treated, or disposed of at the installation according
30 to standard practices at that time. A greater environmental awareness has called for the
31 evaluation of former disposal sites (SWMUs) to determine if there is contamination of concern to
32 human health or the environment. IRP began the process of identifying and evaluating these past
33 sites in 1988.

34 The RCRA Part B permit requires the identification, evaluation, and corrective action (as
35 needed) of SWMUs at Fort Jackson. A total of 53 SWMUs, 28 Areas of Concern, and 50 USTs

1 have been identified within the Fort Jackson boundaries. Fort Jackson has reviewed the known
2 sites of concern and developed an IAP to evaluate potential contamination and remediate where
3 required (Fort Jackson DPW, 2007). The plan is updated annually. Fort Jackson does not have
4 any sites listed on the NPL under CERCLA.

5 The primary contaminants of concern include petroleum/oil/lubricants, ordnance components,
6 metals, and solvents in soil and/or groundwater. The IAP reflects the current status of the
7 ongoing clean-up of the sites of concern.

8 **Other Hazards**

9 Other hazards present at Fort Jackson are controlled, managed, and removed through specific
10 programs and plans and include UXO, LBP, asbestos, PCBs, radioactive materials,
11 and pesticides.

12 **4.13.15.2 Environmental Effects**

13 **No Action Alternative**

14 Minor, adverse impacts are anticipated under the No Action Alternative. Use and generation of
15 hazardous materials and wastes would continue on Fort Jackson, and the handling and storage of
16 these materials would comply with all applicable laws, regulations, and plans.

17 **Alternative 1—Implement Force Reductions**

18 Hazardous materials and wastes would continue to be handled per BMPs that are implemented in
19 compliance with appropriate regulations and as per Fort Jackson's hazardous material and waste
20 programs; therefore, minor, adverse impacts are anticipated.

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
22 regulations governing the handling, management, disposal, and clean up, as appropriate, of
23 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
24 realized at Fort Jackson, the Army would ensure that adequate staffing remains so that the
25 installation would comply with all mandatory environmental regulations.

26 No violation of hazardous waste regulations or the Fort Jackson hazardous waste permit is
27 anticipated as a result of active forces reduction. Volumes of generated waste are expected to
28 decline depending on the specific units affected.

29 Remediation activities are not expected to be affected under Alternative 1. Because of the
30 reduced numbers of people, the potential for spills would be somewhat reduced during training
31 and maintenance activities. Waste collection, storage, and disposal processes would remain
32 mostly unchanged, although the quantities may be reduced. This potential decrease is not
33 expected to affect Fort Jackson's RCRA generator status.

1 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
2 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
3 therefore, potential impacts from these activities are not analyzed.

4 **4.13.16 Traffic and Transportation**

5 **4.13.16.1 Affected Environment**

6 **Highways and Roads**

7 Fort Jackson is located in Columbia, South Carolina, and was incorporated into the city in 1968.
8 Primary access to the installation is provided by Forest Drive, Jackson Boulevard, and I-77.

9 Strom Thurmond Boulevard, formerly known as Imboden Street, and Fort Jackson Boulevard
10 provide access to Fort Jackson's main cantonment via interchanges with I-77. Fort Jackson
11 Boulevard and Gate 1 connect the southern portion of the cantonment to I-77, while Strom
12 Thurmond Boulevard and Gate 2 provide access to the western and northern portion of the
13 cantonment. Since the completion of I-77, most personnel residing off the installation use Gate 2
14 for daily ingress to and egress from the installation. Various secondary roads provide access to
15 the installation from the north, south, east, and west (U.S. Army, 2008).

16 Fort Jackson has over 207 miles of roads open to the public, of which approximately 133 miles
17 are paved and 74 miles are unpaved. The paved roads have a bituminous surface and are in
18 generally fair condition. The loose surface and dirt roads are located in the training and range
19 areas outside the cantonment area. All roadways within the cantonment are paved and two lanes
20 wide except Strom Thurmond Boulevard and Hampton Parkway, which are four lanes wide and
21 have a dividing median, and Marion and Lee roads, which are four lanes for most of their length
22 (U.S. Army, 2008).

23 Traffic flow within the cantonment is predominantly north to south along the primary roadways
24 of Jackson Boulevard, Lee Road, and Marion Avenue. Major east to west primary roadways
25 include Strom Thurmond Boulevard, Washington Road/Anderson Street, Hill Street, Hampton
26 Parkway, and Semmes Road (U.S. Army, 2008).

27 **Railroads**

28 Although Fort Jackson historically used railroads to transport equipment and troops, rail
29 transport has not been used for many years. All rail spurs were removed from the installation in
30 March 1992 (U.S. Army, 2008).

31 **Airports**

32 Columbia Metropolitan Airport, operated by the Richland-Lexington Airport Commission, is
33 situated 6 miles southwest of Columbia's central business district. The primary airlines offering
34 air passenger service to and from Columbia as of May 2008 are American Eagle, Continental,

1 Delta, Northwest, Spirit Airlines, United, and U.S. Airways. Cargo service is provided by
2 Airborne Express, Emery Worldwide, Federal Express, and United Parcel Service. A \$50 million
3 terminal upgrade and improvement project was completed in 1997 (U.S. Army, 2008).

4 Fort Jackson does not have an active airfield. Hilton Field, which historically was used for this
5 purpose, was removed from service following World War II and is currently used as a parade
6 ground (U.S. Army, 2008).

7 **4.13.16.2 Environmental Effects**

8 **No Action Alternative**

9 The No Action Alternative would continue current levels of traffic and congestion. Traffic
10 congestion has not historically been identified as a concern at Fort Jackson. There would be no
11 impacts to transportation.

12 **Alternative 1—Implement Force Reductions**

13 Implementation of Alternative 1 would result in a minimal to beneficial impact on transportation,
14 due to less traffic and attendant congestion. If the maximum force reduction of 3,100 personnel
15 were implemented, a 54 percent reduction, the beneficial impact on traffic on and off the
16 installation would be most noticeable close to the installation. Because a major focus of the
17 installation is training and training is not addressed in this SPEA, it is not possible to assess any
18 additional impacts that might occur due to a potential change in the number of trainees.

19 **4.13.17 Cumulative Effects**

20 The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Jackson consists
21 of Calhoun, Fairfield, Kershaw, Lee, Lexington, Richland, and Sumter counties in South
22 Carolina. Several planned or proposed actions within the ROI have the potential to cumulatively
23 add impacts to Army 2020 alternatives. These actions are identified below.

24 **Reasonably Foreseeable Future Projects on Fort Jackson**

25 The Army recently approved of the re-stationing of the Recruiting and Retention School (RRS)
26 to Fort Knox, Kentucky.

27 **Reasonably Foreseeable Future Projects outside Fort Jackson**

28 The Army is not aware of any reasonably foreseeable future projects outside Fort Jackson that
29 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
30 projects and actions that affect regional economic conditions and generally include construction
31 and development activities, infrastructure improvements, and business and government projects
32 and activities. Additionally, larger economies with more job opportunities could absorb some of
33 the displaced Army workforce, lessening adverse effects from force reductions.

1 **No Action Alternative**

2 There would be no cumulative effects of the foreseeable future actions with the No Action
3 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
4 Alternative would not contribute to any changes.

5 **Alternative 1—Implement Force Reduction**

6 With the exception of socioeconomics, the cumulative impacts to all other resource areas would
7 range from beneficial to minor and adverse.

8 The socioeconomic impact within the ROI, as described in Section 4.13.12.2 with a reduction of
9 3,071 Soldiers and Army civilians, would be minor and adverse on population, the regional
10 economy, schools, and housing. Fort Jackson is located in the Columbia, South Carolina
11 metropolitan area with a population of almost 900,000 residents. Because of the large
12 employment base and diverse economy in the region, the ROI would be less vulnerable to these
13 force reductions because other industries and considerable economic activity occurs within the
14 ROI. As a result, the region may be able to absorb some of the displaced Army employees,
15 mitigating some of the adverse effects.

16 The relocation of the Recruiting and Retention School, which would affect 62 military, 24
17 government civilians, and 6 contract positions, would have adverse regional economic impacts
18 through the loss of jobs and income within the region. Fort Jackson is also home to Basic
19 Combat Training for Soldiers and others, averaging approximately 21,800 students assigned at a
20 time for training. Cumulative actions could include reduced training opportunities because of the
21 force reductions on Fort Jackson, which would result in adverse impacts to socioeconomic
22 conditions because of reduced temporary population and visitors and the attendant economic
23 activity, spending, and jobs and income it supports.

24 Other construction and development activities on the installation and in the ROI would benefit
25 the regional economy through additional economic activity, jobs, and income in the ROI. Under
26 Alternative 1, the loss of approximately 3,100 Soldiers and Army civilians, in conjunction with
27 other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic
28 conditions in the ROI. However, cumulative impacts could be significant for specific schools on
29 the installation and in the ROI.

1 **4.14 Fort Knox, Kentucky**

2 **4.14.1 Introduction**

3 Fort Knox was analyzed in the 2013 PEA. Background information on the installation, including
 4 location, tenants, mission, and population, is discussed in Section 4.13.1 of the 2013 PEA.

5 Fort Knox’s 2011 baseline permanent party population was 13,127. In this SPEA, Alternative 1
 6 assesses a potential population loss of 7,600, including approximately 5,954 permanent party
 7 Soldiers and 1,651 Army civilians.

8 **4.14.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental impacts are anticipated for Fort Knox; however, significant
 11 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 12 4.14-1 summarizes the anticipated impacts to VECs under each alternative.

13 **Table 4.14-1. Fort Knox Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

1 **4.14.3 Air Quality**

2 **4.14.3.1 Affected Environment**

3 The air quality affected environment of the Fort Knox ROI remains generally the same as
4 described in Section 4.13.2.1 of the 2013 PEA with one exception. Bullitt County is a
5 maintenance area for the 1997 O₃ standard (it was incorrectly stated in the 2013 PEA that there
6 were no maintenance areas). The Fort Knox area has not been designated as a nonattainment area
7 for any criteria pollutants (EPA, 2013).

8 **4.14.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
11 emissions at current levels, as well as fugitive dust from training activities, would result in
12 minor, adverse impacts to air quality. Air quality impacts under the No Action Alternative for
13 this SPEA remain the same as described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 The 2013 PEA concluded that the force reductions at Fort Knox would result in long-term,
16 minor, beneficial impacts to air quality due to reduced operations and maintenance activities and
17 reduced vehicle miles travelled associated with the facility. Impacts to air quality from the
18 increased force reductions proposed under Alternative 1 would continue to be beneficial,
19 assuming a corresponding decrease in operations and vehicle travel to and from Fort Knox. The
20 size of this beneficial impact under Alternative 1 would be roughly double the size of the impact
21 anticipated at the time of the 2013 PEA.

22 The relocation of personnel outside of the area because of force reductions could result in
23 negligible, short-term effects on air quality associated with mobile sources. As discussed in
24 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
25 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
26 therefore, potential impacts to air quality from these activities are not analyzed.

27 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
28 quality regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the
29 Army would ensure that adequate staffing remains so that the installation would comply with all
30 mandatory environmental regulations.

1 **4.14.4 Airspace**

2 **4.14.4.1 Affected Environment**

3 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.13.1.2 because of lack of significant, adverse environmental impacts from
5 implementing alternatives included in that analysis. No changes have occurred to the affected
6 environment since 2013. Restricted airspace R-3704 A and B at Fort Knox covers the range
7 complex and extends from the surface to 10,000 feet msl. Airspace surrounding Godman AAF is
8 classified as Class D airspace extending from the surface to 3,300 feet msl (U.S. Army, 2011).

9 **4.14.4.2 Environmental Effects**

10 **No Action Alternative**

11 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
12 airspace at Fort Knox under the No Action Alternative. For the current analysis, Fort Knox
13 would continue to maintain current airspace operations and current airspace classifications.
14 Restrictions are sufficient to meet current airspace requirements and no airspace conflicts are
15 anticipated. Continuation of negligible impacts to airspace from continued airspace operations
16 and activities would remain the same as described in the 2013 PEA.

17 **Alternative 1—Implement Force Reductions**

18 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
19 would occur at Fort Knox. Under Alternative 1, implementation of proposed further force
20 reductions are not expected to affect the installation airspace operations or types of activities
21 conducted on Fort Knox. The force reductions could potentially lower the utilization rate of
22 existing SUA as some units where UAS may be inactivated and no longer require the use of the
23 existing SUA. This reduction would result in a minor, beneficial impact to airspace at Fort Knox.

24 **4.14.5 Cultural Resources**

25 **4.14.5.1 Affected Environment**

26 The affected environment for cultural resources at Fort Knox has not had substantive changes
27 since 2013, as described in Section 4.13.3 of the 2013 PEA.

28 **4.14.5.2 Environmental Effects**

29 **No Action Alternative**

30 Implementation of the No Action Alternative would result in negligible impacts to cultural
31 resources as described in Section 4.13.3.2 of the 2013 PEA. Activities with the potential to affect
32 cultural resources would continue to be monitored and regulated through the use of existing
33 agreements and/or preventative and minimization measures.

1 **Alternative 1—Implement Force Reductions**

2 As described in Section 4.13.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on
3 cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-
4 compliance with cultural resources regulations. Even if the full end-strength reductions were to
5 be realized at Fort Knox, the Army would ensure that adequate staffing remains so that the
6 installation would comply with all mandatory environmental regulations.

7 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
8 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
9 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
10 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
11 necessary to vacate or demolish structures as a result of force reductions, the installation would
12 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
13 consultation to avoid, minimize, and/or mitigate these effects.

14 This alternative could result in some beneficial effects as a decrease in training activities could
15 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
16 fewer people to support, there may be a reduction in the number of undertakings with the
17 potential to affect cultural resources.

18 **4.14.6 Noise**

19 **4.14.6.1 Affected Environment**

20 The noise affected environment of the Fort Knox installation remains the same as described in
21 Section 4.13.5.1 of the 2013 PEA. The primary sources of noise at Fort Knox include aircraft,
22 weapons fire and maneuver training.

23 **4.14.6.2 Environmental Effects**

24 **No Action Alternative**

25 The 2013 PEA anticipated negligible noise impacts because noise generating activities at the
26 installation would continue at the same levels and intensity as historically experienced.
27 Negligible impacts to noise would continue under the No Action Alternative.

28 **Alternative 1—Implement Force Reductions**

29 The 2013 PEA concluded that the force reductions at Fort Knox would result in slightly
30 beneficial noise impacts. Noise impacts would likely remain comparable to current conditions,
31 though noise generating events would be less frequent leading to a reduced risk of noise
32 complaints. The beneficial impact under Alternative 1 would be similar to that described under
33 the 2013 PEA.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
2 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
3 Fort Knox, the Army would ensure that adequate staffing remains so that the installation would
4 comply with all mandatory environmental regulations including noise ordinances
5 and regulations.

6 **4.14.7 Soils**

7 **4.14.7.1 Affected Environment**

8 The soils affected environment on the installation remains the same as was discussed in Section
9 4.13.5.1 of the 2013 PEA.

10 **4.14.7.2 Environmental Effects**

11 **No Action Alternative**

12 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
13 anticipated from continuing training, to include impacts to soils from removal of or damage to
14 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
15 used in training events. Impacts under the No Action Alternative on Fort Knox remain the same
16 as those discussed in Section 4.13.5.2 of the 2013 PEA.

17 **Alternative 1—Implement Force Reductions**

18 Under Alternative 1 of the 2013 PEA, negligible, beneficial impacts to soils were anticipated as a
19 result of less use of training areas. A force reduction would result in less erosion, soil
20 compaction, and loss of vegetation.

21 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
22 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
23 potential impacts from these activities on soils are not analyzed.

24 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
25 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
26 Knox, the Army would ensure that adequate staffing remains so that the installation would
27 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
28 Fort Knox would be beneficial and remain the same as those discussed in Section 4.13.5.2 of the
29 2013 PEA.

1 **4.14.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
2 **Species)**

3 **4.14.8.1 Affected Environment**

4 The affected environment for biological resources at Fort Knox has not changed since 2013, as
5 described in Section 4.13.1.2 of the 2013 PEA. Biological Resources are among the VECs
6 excluded from detailed analysis in the 2013 PEA, due to lack of significant, adverse
7 environmental impacts resulting from the implementation of alternatives included in
8 this analysis.

9 **4.14.8.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible impacts similar to those
12 that are currently occurring to biological resources as described in Section 4.13.1.2 of the 2013
13 PEA. Fort Knox would also continue briefing units regarding sensitive areas prior to each
14 training event, to limit disturbance in sensitive areas and sensitive breeding times for the Indiana
15 and gray bats.

16 **Alternative 1—Implement Force Reductions**

17 Under Alternative 1, negligible impacts are anticipated to biological resources at Fort Knox. Fort
18 Knox anticipates that the proposed force reduction will not change this finding, since Alternative
19 1 does not involve major changes to the installation operations or types of activities conducted
20 on Fort Knox, only a decrease in the frequency of training activities. The beneficial impacts
21 include a reduction in scheduling conflicts for training area access to conduct resource
22 monitoring, and an increase in the ease of implementing more proactive conservation
23 management practices. The installation would continue to manage its natural resources and
24 potential habitat in accordance with the installation INRMP (Fort Knox, 2008), and any
25 conservation measures identified in any ESA, Section 7, consultation documents.

26 Adverse impacts to biological resources could conceivably occur if force reductions prevented
27 environmental compliance from being properly implemented. However, the Army is committed
28 to ensuring that personnel cuts will not result in non-compliance with natural resources
29 regulations. Even if the full end-strength reductions were to be realized at Fort Knox, the Army
30 would ensure that adequate staffing remains so that mandated environmental requirements would
31 continue to be met.

1 **4.14.9 Wetlands**

2 **4.14.9.1 Affected Environment**

3 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.13.1.2 due to lack of significant, adverse environmental impacts as a result of
5 implementing alternatives included in that analysis. No changes have occurred to the affected
6 environment since 2013.

7 **4.14.9.2 Environmental Effects**

8 **No Action Alternative**

9 Implementation of the No Action Alternative would result in negligible, adverse impacts to
10 wetlands and the affected environment would remain in its present state.

11 **Alternative 1—Implement Force Reductions**

12 Per Section 4.13.1.2 of the 2013 PEA, there would be negligible impacts to wetlands under
13 Alternative 1. The installation would continue to manage its wetlands in accordance with the
14 installation INRMP. Impacts to wetlands could conceivably occur if the further force reductions
15 decreased environmental staffing levels to a point where environmental compliance could not be
16 properly implemented. The Army is committed, however, to ensuring that personnel cuts will not
17 result in non-compliance with wetland regulations. Even if the full end-strength reductions were
18 to be realized at Fort Knox, the Army would ensure that adequate staffing remains so that
19 mandated environmental requirements would continue to be met. Therefore, impacts under
20 Alternative 1 at Fort Knox would remain the same as those discussed in Section 4.13.1.2 of the
21 2013 PEA.

22 **4.14.10 Water Resources**

23 **4.14.10.1 Affected Environment**

24 The affected environment for water resources on Fort Knox remains the same as that described
25 in Section 4.13.6.1 of the 2013 PEA. There are no changes to surface water, water supply,
26 wastewater, and stormwater resources.

27 **4.14.10.2 Environmental Effects**

28 **No Action Alternative**

29 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
30 Alternative due to the continued disturbance and pollution of surface waters from training
31 activities. Surface water impacts to water resources under the No Action Alternative would
32 remain the same as described in the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Minor, beneficial impacts to water resources were anticipated from implementation of force
3 reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water
4 supply and an increase in available wastewater treatment capacity. Reduction in training area use
5 from force reductions on Fort Knox was also anticipated to potentially reduce impacts to surface
6 waters from disturbance and spills. Increased force reductions under Alternative 1 of this SPEA
7 would continue to have the same beneficial impacts to water supplies, wastewater capacity, and
8 surface waters.

9 Adverse water resources impacts could conceivably occur if personnel cuts prevented
10 environmental compliance from being implemented. The Army is committed to ensuring that
11 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
12 end-strength reductions were to be realized at Fort Knox, the Army would ensure that adequate
13 staffing remains so that mandated environmental requirements would continue to be met
14 and implemented.

15 **4.14.11 Facilities**

16 **4.14.11.1 Affected Environment**

17 The facilities affected environment of the Fort Knox installation remains the same as described
18 in Section 4.13.7.1 of the 2013 PEA.

19 **4.14.11.2 Environmental Effects**

20 **No Action Alternative**

21 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
22 impacts to facilities at Fort Knox. Fort Knox currently has an excess of facilities available to
23 support its Soldiers, Families, and missions. Because facilities are available as a result of the
24 departure of the Armor school to Fort Benning, impacts to facilities would remain the same as
25 described in the 2013 PEA.

26 **Alternative 1—Implement Force Reductions**

27 The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to
28 facilities would occur on Fort Knox. Under Alternative 1, implementation of proposed further
29 force reductions would also continue to have overall minor, adverse impacts. Impacts would
30 occur from the fact that future, programmed construction or expansion projects may not occur or
31 could be downscoped; moving occupants of older, underutilized, or excess facilities into newer
32 facilities may require modifications to existing facilities; and a greater number of buildings on
33 the installation may become vacant or underutilized due to reduced requirements for facilities,
34 which would have a negative impact on overall space utilization. Some beneficial impacts are
35 also expected as a result of force reductions such as reduced demands for utilities and reduced

1 demands for training facilities and support services. As discussed in Chapter 1, the demolition of
 2 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
 3 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
 4 these activities are not analyzed.

5 **4.14.12 Socioeconomics**

6 **4.14.12.1 Affected Environment**

7 Fort Knox is located south of Louisville and north of Elizabethtown in Kentucky. The ROI for
 8 Fort Knox includes those areas that are generally considered the geographic extent to which the
 9 majority of the installation’s Soldiers, Army civilians, and contractor personnel, and their
 10 Families reside. The ROI includes Hardin and Meade counties in Kentucky.

11 This section provides a summary of demographic and economic characteristics within the ROI.
 12 These indicators are described in greater detail in Section 4.13.8 of the 2013 PEA. However,
 13 demographic and economic indicators have been updated where more current data are available.

14 **Population and Demographics**

15 Using 2011 as a baseline, Fort Knox has a total working population of 21,017 consisting of
 16 active component Soldiers and Army civilians, and other military services, civilians and
 17 contractors. Of the total working population, 13,127 were permanent party Soldiers and Army
 18 civilians. The population that lives on Fort Knox consists of 3,608 Soldiers, 58 Army civilians,
 19 and an estimated 3,438 Family members, for a total on-installation resident population of 7,104
 20 (Cardin, 2014). Finally, the portion of the active component Soldiers, Army civilians, and Family
 21 members living off the installation in 2011 was estimated to be 23,823.

22 In 2012, the ROI had a population of 136,000, an increase of 1.7 percent since 2010. As shown
 23 in Table 4.14-2, compared to 2010, the 2012 population in both Hardin and Meade counties
 24 increased. Table 4.14-3 shows that the racial and ethnic composition of Hardin County is slightly
 25 more diverse than either Meade County or Kentucky. This is largely attributable to the higher
 26 concentration of those who identify themselves as African American (U.S. Census Bureau,
 27 2012a).

28 **Table 4.14-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Hardin County, Kentucky	107,153	+1.5
Meade County, Kentucky	29,220	+2.2

1 **Table 4.14-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kentucky	88.6	8.1	0.3	1.3	1.6	3.2	85.9
Hardin County, Kentucky	81.0	12.6	0.5	2.1	3.4	5.3	76.9
Meade County, Kentucky	92.1	3.9	0.6	0.8	2.4	3.5	89.2

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Information presented below represents an update from the 2013 PEA, which provided
 5 employment and income data from 2009. Between 2000 and 2012, total employment in Hardin
 6 and Meade counties grew at a slightly faster rate than in Kentucky (Table 4.14-4) (U.S. Census
 7 Bureau, 2000 and 2012b).

8 The median household income and median home value in Hardin County was greater than that of
 9 Meade County or Kentucky as a whole. While Meade County reported a median household
 10 income greater than Kentucky, the median home value was lower than the state average. The
 11 poverty rate in Hardin and Meade counties is lower than in Kentucky as a whole (Table 4.14-4)
 12 (U.S. Census Bureau, 2012b).

13 **Table 4.14-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kentucky	1,877,179	+3.3	120,000	42,610	18.6
Hardin County, Kentucky	48,088	+5.1	140,600	49,257	14.8
Meade County, Kentucky	12,179	+4.1	111,100	45,629	15.7

14 Information regarding the workforce by industry for Hardin and Meade counties was obtained
 15 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 16 the employed labor force.

1 **Hardin County, Kentucky**

2 The educational services, and health care and social assistance is the largest employment sector
3 in Hardin County (20 percent). The Armed Forces is the second largest employment sector (13
4 percent), followed by retail trade (11 percent). Manufacturing is the next largest sector in
5 Harding County (10 percent), followed by the public administration sector (9 percent). The 10
6 remaining sectors employ 37 percent of the workforce.

7 **Meade County, Kentucky**

8 Similar to Hardin County, the educational services, and health care and social assistance
9 accounts as the largest employment sector in Meade County (18 percent). Retail trade and
10 manufacturing both account for 11 percent of the employment sector, followed by construction
11 (10 percent). The transportation and warehousing, and utilities sector also account for a notable
12 share of the total workforce in Meade County (9 percent). The Armed Forces account for
13 7 percent of Meade County's workforce. The eight remaining sectors account for 41 percent of
14 the total workforce.

15 **Housing**

16 Family housing at Fort Knox consists of 2,563 units that can accommodate Soldiers and their
17 Families. Of this, approximately 2,216 units are occupied. The installation has space for 11,016
18 unaccompanied personnel. Of this, 2,282 spaces are reserved for permanent party Soldiers;
19 remaining spaces are held for students, trainees, support cadre, Wounded Warriors, and
20 geographic bachelors. Off-installation housing primarily consists of single-family dwellings.
21 Currently, the 3rd BCT, 1st Infantry Division (ID) is being inactivated and a sizable number of
22 homes occupied by these personnel will become vacant within the next 6 months. The
23 inactivation includes approximately 3,500 Soldiers who live both on and off installation
24 (Avey, 2014).

25 **Schools**

26 Approximately 2,200 students are enrolled in DoD Education Activity schools on the
27 installation. An additional 3,500 military-connected students attend schools off the installation.
28 School enrollment in the school districts within the ROI is 14,394 in Hardin County; 5,181 in
29 Mead County; and 2,509 in Elizabethtown Independent Schools. Additional information on
30 schools is provided in the 2013 PEA.

31 **Public Health and Safety**

32 At Fort Knox, police and fire protection services are provided by the Fort Knox Police and Fort
33 Knox Fire departments. On installation medical services are administered at Ireland Army
34 Community Hospital. This facility provides services to all permanent party, active component
35 military, retirees, and Family members. Additional public health and safety information is
36 provided in the 2013 PEA.

1 **Family Support Services**

2 The Fort Knox ACS, a human service organization, provides services and programs designed to
3 assist Soldiers and Families under FMWR. Fort Knox's CYSS, a division of FMWR, provides
4 facilities and care for children ranging from 6 weeks to 18 years of age. It also provides sports
5 and instructional classes for children of active component military and DoD civilian and
6 contractor personnel. Children of retired military personnel are eligible to participate in the
7 middle school and teen, youth sports, and Schools of Knowledge, Inspiration, and Exploration &
8 Skills (SKIES) programs. Additional information about Family Support Services is provided in
9 the 2013 PEA.

10 **Recreation Facilities**

11 Fort Knox offers a variety of recreation and leisure programs to military personnel, Army
12 civilians, and their Families. Facilities include but are not limited to a golf course, bowling
13 center, auto crafts shop, fitness centers, and outdoor recreation opportunities. Additional
14 information about recreation facilities is provided in the 2013 PEA.

15 **4.14.12.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, operations at Fort Knox would continue to benefit regional
18 economic activity. No additional impacts to housing, public and social services, public schools,
19 public safety, or recreational activities are anticipated.

20 **Alternative 1—Force Reduction**

21 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
22 significant impact to socioeconomic resources. The description of impacts to the various
23 components of socioeconomics is presented below.

24 ***Population and Economic Impacts***

25 Alternative 1 would result in the loss of up to 7,605¹⁹ Army positions (5,954 Soldiers and 1,651
26 Army civilians), with an average annual income of \$46,760 and \$57,523, respectively. In
27 addition, this alternative would affect an estimated 11,544 Family members, including 4,244
28 spouses and 7,301 children. The total number of Army employees and their Family members
29 who may be directly affected under Alternative 1 is projected to be 19,149.

¹⁹ This number was derived by assuming the loss of one BCT, 60 percent of Fort Knox's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 7,605. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 3,840.

1 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 2 forecasted economic impact value falls outside the historical positive or negative range. Table
 3 4.14-5 shows the deviation from the historical average that would represent a significant change
 4 for each parameter. The last row summarizes the deviation from the historical average for the
 5 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 6 by the EIFS model. Based on the EIFS analysis, changes in income, employment, and population
 7 in the ROI under Alternative 1 fall outside the historical range and are categorized a significant
 8 impact. However, there would not be significant impacts to sales because the estimated
 9 percentage change is within the historical range.

10 **Table 4.14-5. Economic Impact Forecast System and Rational Threshold Value**
 11 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.8	6.8	6.8	6.4
Economic contraction significance value	-7.1	-5.1	-7.2	-4.6
Forecast value	-6.8	-8.1	-16.4	-11.7

12 Table 4.14-6 summarizes the predicted impacts to income, employment, and population of force
 13 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 14 percent change from the historical average, the percentages in the following table show the
 15 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 16 agreement with the EIFS forecasted values, these figures show the same significance
 17 determinations as the EIFS predictions in the previous table.

18 **Table 4.14-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated impact estimates	-\$431,208,500	-8,634 (Direct)	-19,149
		-1,017 (Induced)	
		-9,650 (Total)	
Total 2012 ROI economics estimates	\$5,339,264,000	60,267	136,480
Percent reduction of 2012 figures	-8.1	-16.0	-14.0

19 Note: Sales estimates are not consistently available from public sources for all counties in the United
 20 States; therefore, the sales data for counties are not presented in this table. The estimated
 21 reduction in total sales from EIFS is described in the paragraphs below.

22 With a potential reduction in the population in the ROI, losses in sales, income, employment, and
 23 tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 24 cumulative force reductions. Because of the maximum potential loss of 7,605 Soldiers and Army
 25 civilians under Alternative 1, EIFS estimates an additional 1,029 direct contract service jobs

1 would also be lost. An additional 1,017 induced jobs would be lost because of the reduction in
2 demand for goods and services within the ROI. The total reduction in employment is estimated
3 to be 9,650, a significant reduction of 16.0 percent from the total employed labor force in the
4 ROI of 60,267. Income is estimated to fall by \$431.2 million, an 8.1 percent decrease in income
5 from 2012.

6 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$424.8 million.
7 There would also be a loss in sales tax receipts to local and state governments. The state and
8 local sales tax rate for Kentucky is 6.0 percent (Tax Foundation, 2014). To estimate sales tax
9 reductions, information was utilized on the proportion of sales that would be subject to sales
10 taxes on average across the country. According to the U.S. Economic Census an estimated 16
11 percent of economic output or sales would be subject to sales taxes (U.S. Economic Census,
12 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of
13 \$424.8 million resulting in an estimated sales tax receipts decrease of \$4.1 million under
14 Alternative 1 if all sales occurred in Kentucky.

15 Of the 136,480 people (including those residing on Fort Knox) who live within the ROI, 7,605
16 Army employees and their estimated 11,544 Family members are predicted to no longer reside in
17 the area under Alternative 1, resulting in a significant population reduction of 14.0 percent. To
18 ensure the potential impacts were captured to the greatest extent possible this population loss was
19 assessed against the EIFS threshold of -4.6 percent and determined to be a significant impact.
20 This number could overstate potential population impacts, because some of the people no longer
21 employed by the military could continue to live and work within the ROI, finding employment in
22 other industry sectors. However, due to the rural nature of the area and Fort Knox as a dominant
23 employer and economic driver of the ROI, the majority of displaced personnel would likely
24 move out of the area to seek other opportunities with the Army or elsewhere. There are few
25 employing sectors in the ROI to absorb displaced military employees. A small number of
26 displaced personnel may stay in the ROI and seek and find work while others may remain
27 unemployed and possibly affect the unemployment rate in the ROI.

28 **Housing**

29 The population reduction that would result under Alternative 1 would decrease housing demand
30 and increase housing availability on the installation and in areas across the ROI. Increased
31 vacancy across the region, which would likely be experienced in the cities of Elizabethtown and
32 Radcliff has the potential to result in a decrease in median home values. Because of the relatively
33 small population of the ROI, the reduced demand for housing and increased availability of
34 housing associated with the force reductions that would occur under Alternative 1 has the
35 potential to result in significant impacts to the housing market. Due to the current inactivation of
36 Fort Knox's 3rd BCT, 1st ID, the housing market is currently saturated with almost 6,000 vacant
37 housing units in Hardin County (U.S. Census Bureau, 2014c); these impacts are anticipated to
38 become more adverse under Alternative 1.

1 **Schools**

2 Under Alternative 1, the potential reduction of 7,605 Soldiers and Army civilians would decrease
3 the number of children by 7,301. It is anticipated that school districts that provide education to
4 children living on the installation would be impacted by this action. Schools on the installation
5 and off the installation are expected to experience a decline in enrollment. As described in the
6 2013 PEA, 3,500 military-connected students are enrolled at schools across the ROI. The current
7 inactivation of Fort Knox’s 3rd BCT, 1st ID, has currently resulted in the loss of approximately
8 1,000 students and 100 teachers and administrative staff as well as the closing of four of eight
9 education facilities (Avey, 2014). With additional force reductions, there would be additional
10 losses in enrollment, teachers, and administrative staff. Overall, schools within the ROI could
11 experience significant, adverse impacts from the decline in military-connected student
12 enrollment that would result under Alternative 1.

13 The reduction of Soldiers and Army civilians on Fort Knox would result in a loss of Federal
14 Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on
15 the number of students who are considered “federally connected” and attend district schools.
16 Actual projected dollar amounts cannot be determined at this time due to the variability of
17 appropriated dollars from year to year, and the uncertainty of the actual number of affected
18 school-age children for Army and civilian Families. School districts in the ROI would likely
19 need fewer teachers and materials as enrollment drops, which would partially offset the reduced
20 Federal Impact Aid. However, schools may also have invested in capital improvements or new
21 facilities, which require bond repayment/debt servicing. With decreased revenue for these school
22 districts, it may place additional burden on school districts with potential implications for
23 operations. These are fixed costs that would not be proportionately reduced such as those
24 operational costs (teachers and supplies). Overall, adverse impacts to schools associated with
25 Alternative 1 could be significant depending on the number of military-connected students
26 attending schools.

27 **Public Services**

28 The demand for law enforcement, medical care providers, and fire and emergency service
29 providers on the installation would decrease should Soldiers and Army civilians, and their
30 Families, affected under Alternative 1, move to areas outside the ROI. Adverse impacts to public
31 services could conceivably occur if personnel cuts were to substantially affect hospitals, military
32 police, and fire and rescue crews on the installation.

33 Under Alternative 1, the loss of military revenue could result in hospital and other clinic closures
34 and the loss of access to medical services. Although the level and number of services may
35 decrease at medical facilities on the installation and in the ROI, the Army, regardless of any
36 drawdown in military or civilian personnel, is committed to meeting health and
37 safety requirements.

1 **Family Support Services and Recreation Facilities**

2 Family Support Services and recreation facilities on the installation would experience a decrease
3 in demand when Soldiers and Army civilians, and their Family members, affected under
4 Alternative 1, move out of the ROI. Under the current inactivation of Fort Knox's 3rd BCT, 1st
5 ID, the Directorate of FMWR has already closed and Family Support Services have been
6 consolidated. Additional facility closures and decreases in services would continue under
7 Alternative 1. The Army, however, is committed to meeting the needs of the remaining
8 population on the installation. Overall, minor to significant impacts to Family Support Services
9 and recreational facilities under Alternative 1 would result.

10 **Environmental Justice and Protection of Children**

11 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
12 *Low-Income Populations*, states: "each Federal agency shall make achieving environmental
13 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
14 and adverse human health or environmental effects of its programs, policies, and activities on
15 minority and low-income populations" (EPA, 1994). As shown in Table 4.14-4, the proportion of
16 minority populations in Hardin County is greater than the proportion in Kentucky as a whole.
17 Because of the higher percentage of minority populations in Hardin County, the implementation
18 of Alternative 1 has the potential to result in adverse impacts to minority-owned and/or -staffed
19 businesses if Soldiers and Army civilians directly affected under Alternative 1 move to areas
20 outside the ROI. Both Hardin and Meade counties report fewer people living below the poverty
21 line than in Kentucky overall. Overall, environmental justice populations could be adversely
22 impacted under Alternative 1, although the impacts are not likely to be disproportional.

23 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
24 federal agencies are required to identify and assess environmental health and safety risks that
25 may disproportionately affect children and to ensure that the activities they undertake do not
26 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
27 were to be realized, the Army is committed to implementing required environmental compliance
28 and meeting the health and safety needs of the people associated with the installation, including
29 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
30 environmental health and safety risks to children within the ROI. Additionally, this analysis
31 evaluates the effects associated with workforce reductions only, and any subsequent actions on
32 the installation that may require ground-disturbing activities that have the potential to result in
33 environmental health and safety risks to children, such as demolishing vacant buildings, is
34 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
35 as appropriate.

1 **4.14.13 Energy Demand and Generation**

2 **4.14.13.1 Affected Environment**

3 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
4 PEA as described in Section 4.13.1.2 because there were no significant, adverse environmental
5 impacts from implementing alternatives included in the analysis. No changes have occurred to
6 the affected environment since 2013.

7 **4.14.13.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, adverse impacts to energy demand and generation would be
10 the same as discussed in the VEC dismissal statement in the 2013 PEA and would be negligible.
11 Fort Knox would continue to consume similar types and amounts of energy, and maintenance of
12 existing utility systems would continue.

13 **Alternative 1—Implement Force Reductions**

14 The VEC dismissal statement analysis of force reductions in the 2013 PEA concluded that
15 negligible impacts to energy demand and generation would occur on Fort Knox. Under
16 Alternative 1, minor, beneficial impacts to energy are anticipated due to a further reduction in
17 energy consumption associated with the additional force reductions. The installation would also
18 be better positioned to meet energy and sustainability goals.

19 **4.14.14 Land Use Conflicts and Compatibility**

20 **4.14.14.1 Affected Environment**

21 The land use affected environment of the Fort Knox installation remains the same as described in
22 Section 4.13.9.1 of the 2013 PEA.

23 **4.14.14.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, the 2013 PEA concluded that no changes to land use
26 conditions would occur and no impacts are anticipated. Impacts under the No Action Alternative
27 on Fort Knox remain the same as those discussed in the 2013 PEA.

28 **Alternative 1—Implement Force Reductions**

29 The 2013 PEA concluded that the force reductions at Fort Knox would result in land use impacts
30 similar to those anticipated under the No Action Alternative. Under Alternative 1, impacts would
31 be similar to those described in the 2013 PEA.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
2 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
3 at Fort Knox, the Army would ensure that adequate staffing remains so that the installation
4 would comply with all mandatory environmental regulations including land use ordinances
5 and regulations.

6 **4.14.15 Hazardous Materials and Hazardous Waste**

7 **4.14.15.1 Affected Environment**

8 As described in the 2013 PEA, hazardous materials are used on Fort Knox. These hazardous
9 materials include hazardous materials and waste from USTs and ASTs, pesticides, LBP,
10 asbestos, PCBs, radon, and UXO. Fort Knox was a large-quantity hazardous waste generator and
11 had a RCRA, Part B, permit for a Treatment, Storage, and Disposal Facility until it was closed in
12 November 2012. Fort Knox currently maintains RCRA 90 day collection site for hazardous
13 waste. The types of wastes generated and stored at the installation include those found in
14 maintenance activities, printing and painting operations, and electrical and mechanical shops.
15 Approximately 90 percent of the waste solvents at Fort Knox are generated from vehicle and
16 aircraft maintenance facilities. Many of the wastes received for disposal are expired commercial
17 chemical products. No substantial changes have occurred to the affected environment since 2013.

18 **4.14.15.2 Environmental Effects**

19 **No Action Alternative**

20 As described in the 2013 PEA, negligible impacts are anticipated under the No Action
21 Alternative. Use of hazardous materials and generation of hazardous wastes would continue on
22 Fort Knox in accordance with all applicable laws, regulations, and plans.

23 **Alternative 1—Implement Force Reductions**

24 The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts from hazardous
25 materials and hazardous waste would occur on Fort Knox. Alternative 1 in this SPEA is not
26 expected to involve major changes to the installation operations or types of activities conducted
27 on Fort Knox. Because of the reduced numbers of people, it is expected that the potential for
28 spills would be reduced further during training and maintenance activities. Fort Knox would
29 continue to implement its hazardous waste management.

30 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
31 regulations governing the handling, management, disposal, and clean up, as appropriate, of
32 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
33 realized at Fort Knox, the Army would ensure that adequate staffing remains so that the
34 installation would comply with all mandatory environmental regulations.

1 At Fort Knox due to previous inactivations and downsizing of military living on the installation,
2 housing units and several DoD Education Activity schools are planned for demolition. As
3 discussed in Chapter 1, the demolition and/or renovation of existing buildings is not part of the
4 scope of this SPEA.

5 **4.14.16 Traffic and Transportation**

6 **4.14.16.1 Affected Environment**

7 The transportation affected environment of the Fort Knox ROI remains the same as described in
8 Section 4.13.11.1 of the 2013 PEA. In conjunction with 2005 BRAC, the surrounding communities
9 invested heavily in traffic improvements and a mass transit system, and Fort Knox completely
10 redesigned its ingress and egress capabilities to increase capacity and improve security.

11 **4.14.16.2 Environmental Effects**

12 **No Action Alternative**

13 Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. The existing
14 transportation system on and off the installation has sufficient capacity to support the current
15 traffic load and impacts would continue to be negligible.

16 **Alternative 1—Implement Force Reductions**

17 The 2013 PEA concluded that the force reductions at Fort Knox would result in minor, beneficial
18 impacts to traffic and transportation systems. It is anticipated that traffic congestion would
19 decrease around key ACPs and entrance gates, although the current system is providing
20 sufficient LOS to meet the needs of its supported Soldiers, their Families, and civilians. These
21 same beneficial impacts are expected under Alternative 1, although the size of the beneficial
22 impact would be larger than anticipated at the time of the 2013 PEA because of the larger
23 proposed reduction in forces.

24 **4.14.17 Cumulative Effects**

25 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
26 realignment at Fort Knox includes Hardin and Meade counties in Kentucky. Section 4.13.12 of
27 the 2013 PEA noted numerous planned or proposed actions within the ROI that reasonably could
28 be initiated within the next 5 years and would have the potential to cumulatively add impacts to
29 Alternative 1. A number of the Army's proposed projects have been previously identified in the
30 installation's Real Property Master Planning Board and are programmed for future execution.

31 **Reasonably Foreseeable Future Projects on Fort Knox**

32 The DoD Education Activity recently awarded a school project on Fort Knox in the amount of
33 \$34 million (Fort Knox, 2014a). No additional actions have been identified by the installation
34 beyond those noted in the cumulative effects analysis of the 2013 PEA.

1 **Reasonably Foreseeable Future Projects outside Fort Knox**

2 The Army is not aware of any reasonably foreseeable future projects outside Fort Knox which
3 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
4 projects and actions that affect regional economic conditions and generally include construction
5 and development activities, infrastructure improvements, and business and government projects
6 and activities. Additionally, smaller, less diversified economies will be more vulnerable to force
7 reductions and provide fewer opportunities to displaced Army employees.

8 **No Action Alternative**

9 There would be no cumulative effects due to the No Action Alternative, essentially the same as
10 was determined in the 2013 PEA. Current socioeconomic conditions would persist within the
11 ROI, and the No Action Alternative would not contribute to any changes.

12 **Alternative 1—Implement Force Reductions**

13 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
14 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Knox are
15 anticipated to be significant and adverse for socioeconomics, with generally beneficial impacts
16 for the other resources.

17 The socioeconomic impact under Alternative 1, as described in Section 4.14.12.2 with a
18 reduction of 7,605 Soldiers and Army civilians, could lead to significant impacts to the
19 population, regional economy, schools, and housing in the ROI. Fort Knox has long been an
20 economic driver in the ROI employing thousands of Soldiers and civilian employees. The
21 relatively smaller, rural economy of the ROI depends on the installation's employment and
22 economic activity. With fewer opportunities for employment, the ROI would likely not be able
23 absorb many of the displaced forces. In Hardin and Meade counties, the Armed Forces account
24 for 13 and 7 percent of the workforce, respectively, demonstrating the importance of the
25 installation to employment in the region.

26 Additionally, non-federal investments have been made by private companies and local
27 communities and governments to support Army installations. With decreased population,
28 employment, spending, and economic activity within the ROI, additional financial burden may
29 be placed on companies, communities, and institutions, with implications for the provision of
30 services and viability of operations. Impacts to multiple regional community services and
31 schools are anticipated because they receive funding, support, time, donations, and tax revenue
32 directly related to the number of military authorizations and the number of Family members.

33 Additionally, the DoD Education Activity recently awarded a school project on Fort Knox in the
34 amount of \$34 million (Fort Knox, 2014a), which may not come to fruition if a sufficient number
35 of Soldiers and Family members are no longer on the installation. Additional adverse impacts to
36 schools could occur if this school project does not occur.

1 Stationing changes, such as realignment away from Fort Knox and inactivation of the BCT,
2 would also affect regional economic conditions through the loss of jobs and income within the
3 region. Other infrastructure improvements and construction and development activity would
4 benefit the regional economy through additional economic activity, jobs, and income in the ROI;
5 however, these benefits would not offset the adverse impacts to socioeconomics under
6 Alternative 1. Under Alternative 1, the loss of approximately 7,600 Soldiers, in conjunction with
7 other reasonably foreseeable actions, would have significant impacts to employment, income, tax
8 receipts, housing values, and schools in the ROI.

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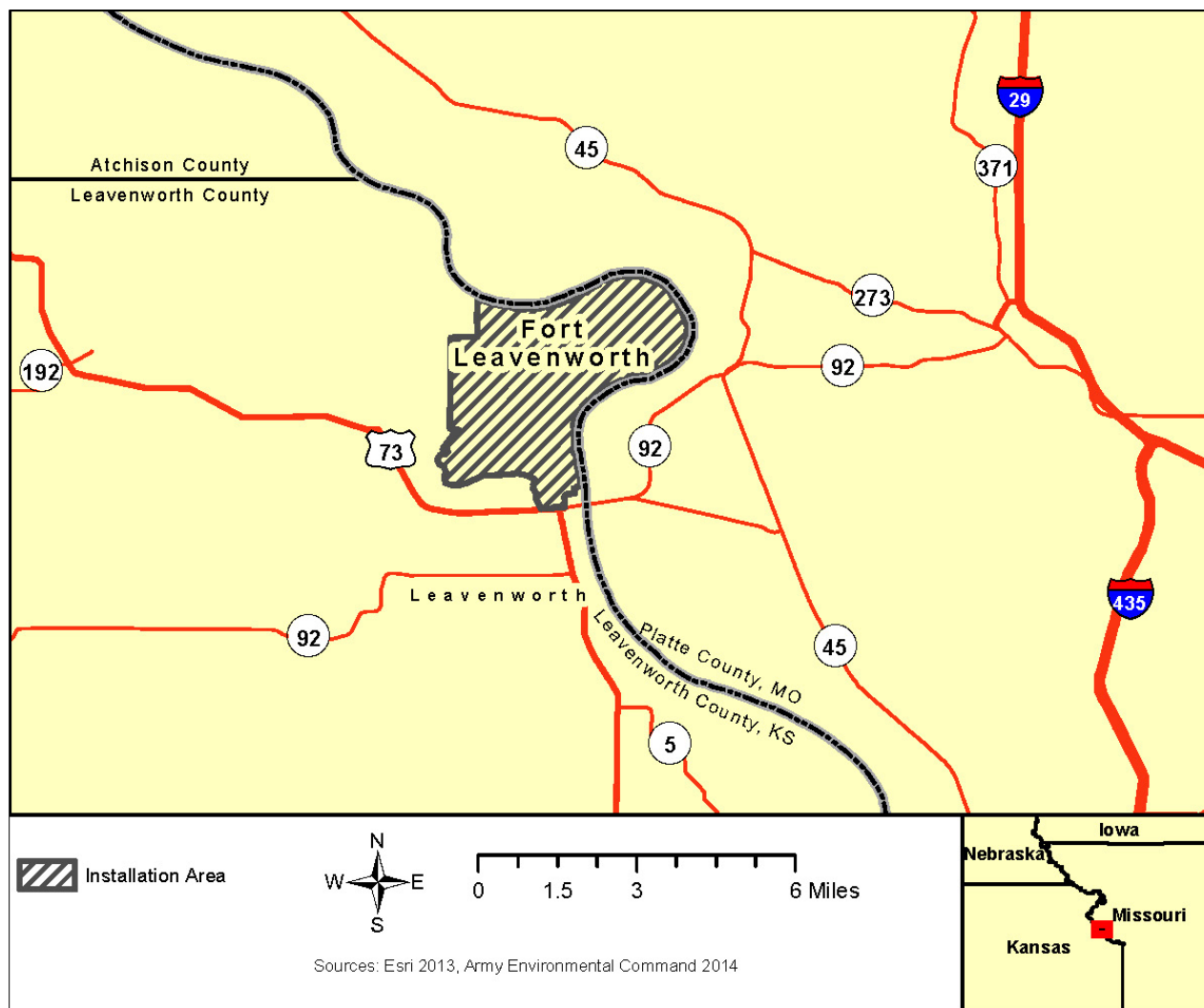
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1 **4.15 Fort Leavenworth, Kansas**

2 **4.15.1 Introduction**

3 Fort Leavenworth, Kansas, is located approximately 38 miles northwest of downtown Kansas
4 City, Missouri, and 20 miles from Kansas City International Airport. Fort Leavenworth is located
5 on the west bluff of the Missouri River just north of the town of Leavenworth, Kansas (Figure
6 4.15-1). Fort Leavenworth, established as a frontier outpost in 1827, provided protection to the
7 northwest fur trade and developing trade with Santa Fe. Throughout the 20th century, officer
8 education became the installation's primary mission and it is now the Army's center for
9 advanced tactical education plus combat development and training. Fort Leavenworth's military
10 mission also includes the confinement and rehabilitation of military criminals
11 (U.S. Army, 2004).

12 Fort Leavenworth's 2013 baseline permanent party population was 5,004. In this SPEA,
13 Alternative 1 assesses a potential population loss of 2,500, including approximately 1,789
14 permanent party Soldiers and 735 Army civilians.



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Figure 4.15-1. Fort Leavenworth, Kansas

4.15.2 Valued Environmental Components

For alternatives the Army is considering as part of its 2020 force structure realignment, no significant, adverse environmental impacts are anticipated for Fort Leavenworth; however, significant socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table 4.15-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.15-1. Fort Leavenworth Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	Minor	Beneficial
Wetlands	Negligible	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

2 **4.15.3 Air Quality**

3 **4.15.3.1 Affected Environment**

4 Fort Leavenworth is located in an area in attainment for all criteria pollutants (EPA, 2013). Fort
 5 Leavenworth currently has one Class II Air Emission Source Operating Permit issued by the
 6 state of Kansas. This permit was issued on February 15, 2002, and it is an open-ended permit that
 7 does not expire. Fort Leavenworth has not had any air quality violations and is in attainment for
 8 this permit (U.S. Army, 2008).

9 **4.15.3.2 Environmental Effects**

10 **No Action Alternative**

11 Continuation of existing levels of emissions under the No Action Alternative would result in
 12 minor, adverse impacts to air quality. Emissions would remain in compliance with
 13 existing permits.

14 **Alternative 1—Implement Force Reductions**

15 Impacts to air quality from the force reductions proposed under Alternative 1 would result in
 16 minor, long-term, and beneficial air quality impacts because of reduced demand for heating/hot
 17 water and reduced operation of mobile sources to and from the facility.

1 The relocation of personnel outside of the area because of force reductions could result in
2 negligible, short-term effects on air quality associated with mobile sources. As discussed in
3 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
4 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
5 therefore, potential impacts to air quality from these activities are not analyzed.

6 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
7 quality regulations. Even if the full end-strength reductions were to be realized at Fort
8 Leavenworth, the Army would ensure that adequate staffing remains so that the installation
9 would comply with all mandatory environmental regulations.

10 **4.15.4 Airspace**

11 **4.15.4.1 Affected Environment**

12 Airspace at Fort Leavenworth is classified as Class B airspace ranging from 2,400 to 8,000 msl
13 based on its proximity to Kansas City International Airport. No SUA or other restrictions exist at
14 Fort Leavenworth. Sherman AAF on Fort Leavenworth was established in 1923 and is an
15 approved joint use military airfield. In addition to military flight operations, Sherman AAF hosts
16 the Fort Leavenworth Army Flying Activity, a Moral, Welfare, and Recreation flying club, as
17 well as a civilian Fixed Base Operator, located approximately 1,500 feet south of the military
18 facility (U.S. Army, 2008).

19 **4.15.4.2 Environmental Effects**

20 **No Action Alternative**

21 Fort Leavenworth would maintain existing airspace operations under the No Action Alternative.
22 All current airspace restrictions are sufficient to meet current airspace requirements and no
23 airspace conflicts are anticipated. There would be negligible impacts to airspace under the No
24 Action Alternative.

25 **Alternative 1—Implement Force Reductions**

26 Airspace restrictions and classifications on and around Fort Leavenworth are sufficient to meet
27 current airspace requirements and a force reduction would not alter the current airspace use.
28 Force reductions would not be projected to require the establishment of an SUA and as a result
29 negligible impacts to airspace would occur under Alternative 1.

30 **4.15.5 Cultural Resources**

31 **4.15.5.1 Affected Environment**

32 The affected environment for Fort Leavenworth is the installation footprint. The majority of Fort
33 Leavenworth has been surveyed for archaeological resources. There are a total of 19 prehistoric

1 archaeological sites, 3 historic sites, and 157 historic building sites present within the
2 installation. Historic building sites represent known or presumed locations of demolished 19th
3 and 20th century structures within Fort Leavenworth. Quarry Creek is the largest prehistoric site
4 present at the installation and has been dated to the Middle Woodland Period (1 A.D. to 750
5 A.D.). Historic archaeological sites include the Main Parade Ground, Santa Fe Trail Ruts, and
6 Fort Sully—a large, earthen Civil War fortification constructed in 1864. The Quarry Creek site,
7 Main Parade Ground and Santa Fe Trail Ruts are individually listed in the NRHP. Other
8 archaeological sites are included in the Fort Leavenworth NHL District discussed below.

9 Fort Leavenworth is the oldest active army post west of the Mississippi (Fort Leavenworth,
10 2010). The Army has completed surveys of the entire installation to identify and evaluate
11 architectural resources. These surveys have documented resources that date from 1832 to the
12 1940s (Fort Leavenworth, 2010). The Fort Leavenworth NHL District encompasses 213 acres
13 and consists of 264 contributing elements: 237 buildings, 3 historic structures, 2 historic objects,
14 and 22 archaeological sites. There are six resources located outside the NHL District that are
15 individually eligible for listing in the NRHP.

16 Fourteen federally recognized Indian tribes are considered culturally affiliated with the resources
17 present within the installation (Fort Leavenworth, 2010). Many of these tribes were relocated to
18 the area after the establishment of Fort Leavenworth and are primarily interested in resources
19 located off-installation (Fort Leavenworth, 2010). Consultation with these groups has not
20 resulted in the identification of TCPs or sacred areas.

21 The ICRMP for Fort Leavenworth was completed in 2010. The document outlines the policies
22 and procedures for managing cultural resources at the installation. In addition to this document,
23 Fort Leavenworth has developed alternative procedures for compliance with Section 106, of the
24 NHPA through a programmatic agreement with the Kansas SHPO (Fort Leavenworth, 2010).

25 **4.15.5.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative, cultural resources would continue to be managed in adherence
28 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
29 installation would continue to consult with the SHPO and applicable tribes on the effects of
30 undertakings that may affect cultural resources. Activities with the potential to affect cultural
31 resources would continue to be monitored and regulated through the use of existing agreements
32 and/or preventative and minimization measures. The effects of the No Action Alternative would
33 be minor and would come from the continuation of undertakings that have the potential to affect
34 archaeological and architectural resources (e.g., training, maintenance of historic buildings, and
35 new construction).

1 **Alternative 1—Implement Force Reductions**

2 Alternative 1 would have a minor, adverse impact on cultural resources. The Army is committed
3 to ensuring that personnel cuts will not result in non-compliance with cultural resources
4 regulations. Even if the full end-strength reductions were to be realized at Fort Leavenworth, the
5 Army would ensure that adequate staffing remains so that the installation would comply with all
6 mandatory environmental regulations.

7 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
8 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
9 potential impacts from demolition activities are not analyzed. If future site-specific analysis
10 indicates that it is necessary to vacate or demolish structures as a result of force reductions, the
11 installation would comply with applicable laws, such as the NHPA, and conduct the necessary
12 analyses and consultation to avoid, minimize, and/or mitigate these effects.

13 The effects of this alternative are considered to be similar to the No Action Alternative –future
14 activities with the potential to effect cultural resources would continue to be monitored and the
15 impacts reduced through preventative and minimization measures. This alternative could result
16 in some beneficial effects as a decrease in training activities could reduce the potential for
17 inadvertent disturbance of archaeological resources. Additionally, with fewer people to support,
18 there may be a reduction in the number of undertakings with the potential to affect
19 cultural resources.

20 **4.15.6 Noise**

21 **4.15.6.1 Affected Environment**

22 The main sources of noise at Fort Leavenworth and within the surrounding area include
23 vehicular traffic; normal operation for heating, ventilation, and air conditioning systems; lawn
24 maintenance equipment; and general maintenance of streets and sidewalks (Kansas ARNG,
25 2013). Fort Leavenworth currently does not have any assigned military aircraft. A limited
26 number of flights arrive and depart at Sherman AAF; most are small privately owned planes.
27 Takeoffs and landings are conducted only during daylight hours. As such, aircraft are not a
28 significant source of noise at Fort Leavenworth or in nearby communities. The only weapons
29 firing ranges on Fort Leavenworth are Kinder Range, a small arms firing range, and Brunner
30 Range, a trap and skeet recreation area. Noise from the ranges occurs sporadically during
31 daylight hours. No artillery, explosives, or other weapons that generate loud noise or vibrations
32 are used on Fort Leavenworth (USACE, 2009). The weapons firing ranges do not have adverse
33 noise impacts to land uses on the installation or within the surrounding community because they
34 are located in relatively isolated areas of the installation (U.S. Army, 2009).

35 Fort Leavenworth has established an ICUZ program, designed to monitor existing noise levels
36 and protect the general public from noise impacts. Currently, monitoring has determined that

1 there are no significant noise levels present on the installation (U.S. Army, 2004). Due to the
2 limited sources of noise at Fort Leavenworth, the installation is not required to have an
3 Environmental Noise Management Plan (U.S. Army, 2009).

4 Sensitive land uses outside the installation include residential development, schools, and
5 churches. These receptors are buffered in many places by densely wooded vegetation (Kansas
6 ARNG, 2013). The area outside the northwest portion of the installation is a planned growth area
7 for additional residential development by the city of Leavenworth. There is currently no conflict
8 between Fort Leavenworth and its neighbors regarding noise on the installation (USACE, 2009).

9 **4.15.6.2 Environmental Effects**

10 **No Action Alternative**

11 Under the No Action Alternative, existing force levels, operations, and activities at Fort
12 Leavenworth would continue unchanged. Currently, none of the ongoing mission activities have
13 potential to cause adverse impacts to noise-sensitive uses on the installation or in surrounding
14 areas. Occasional aircraft activity and intermittent construction and maintenance projects would
15 be the only sources of elevated noise levels, and these would occur on an infrequent and
16 temporary basis. The No Action Alternative would therefore have negligible noise impacts.

17 **Alternative 1—Implement Force Reductions**

18 Under Alternative 1, existing force levels at Fort Leavenworth would be reduced and mission
19 activities would be decreased. Noise levels, and related impacts to noise-sensitive uses on and
20 surrounding the installation, would be reduced from those associated with the No Action
21 Alternative. Alternative 1 would therefore have beneficial impacts to noise.

22 **4.15.7 Soils**

23 **4.15.7.1 Affected Environment**

24 Fort Leavenworth is located within the Dissected Till Plains section of the Central Lowland
25 physiographic province. This region is characterized by rolling hills and fertile soils formed from
26 glacial till and wind borne loess (USACE, 2009). A large portion of the region is underlain by
27 shalestone. The eastern portion of the installation is within the 100 year floodplain of the
28 Missouri River (FEMA, 2010).

29 The predominant upland soils on Fort Leavenworth are generally moderately deep to deep, flat to
30 gently rolling, and moderately well drained to well drained. The slope is mostly under 2 percent;
31 however, the western portion of the installation, west of the Missouri River floodplain, is
32 dominated by soils on slopes up to 30 percent. The floodplain soils are generally deep, flat, with
33 slopes less than 2 percent, and somewhat poorly drained. Floodplain soils are generally derived

1 from alluvial material; whereas, the upland soils are derived primarily from alluvial material and
2 wind borne loess (NRCS, 2013).

3 The dominant soil map units on the installation, which include soils from the Gosport, Haynie,
4 Knox, Ladoga, Marshall, and Onawa soil series, are moderately erodible due to their being
5 comprised primarily of silt. Silty soils are easily detached and undergo high rates of runoff
6 exposed to wind and water.

7 **4.15.7.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, minor, adverse impacts to soil are anticipated at Fort
10 Leavenworth. The installation would continue to conduct training activities which could have
11 continuing adverse effects on the erodible silty soils. Fort Leavenworth would continue to
12 incorporate BMPs to minimize soil erosion and reduce sedimentation into waters and wetlands
13 (USACE, 2009).

14 **Alternative 1—Implement Force Reductions**

15 Under Alternative 1, beneficial impacts to soils are anticipated. Force reductions would likely
16 result in decreased use of the training ranges which could have beneficial impacts to soils
17 because there would be an anticipated decrease in soil compaction and vegetation loss. Over
18 time, less sediment would discharge in to state and federal waters and wetlands.

19 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
20 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
21 potential impacts from these activities on soils are not analyzed.

22 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
23 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
24 Leavenworth, the Army would ensure that adequate staffing remains so that the installation
25 would comply with all mandatory regulations.

26 **4.15.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 27 Species)**

28 **4.15.8.1 Affected Environment**

29 **Vegetation**

30 Vegetation on Fort Leavenworth is diverse and includes upland forest, bottomland forest, bluff
31 ecosystem, grassland, and urban or maintained grounds. An oak-hickory forest associated with
32 walnut (*Juglans* spp.), elm (*Ulmus* spp.), hackberry (*Celtis* spp.), ash (*Fraxinus* spp.), maple
33 (*Acer* spp.), locust (*Robinia* spp.), and cherry (*Prunus* spp.) characterizes the upland forest. The

1 bottomland forest is cottonwood-sycamore with the associated species of boxelder (*Acer*
2 *negundo*), willow (*Salix* spp.), pecan (*Carya illinoensis*), hackberry, ash, and walnut. The bluff
3 ecosystem is similar to the upland forest but with greater wildflower diversity. Grasslands range
4 from native prairie grasses to planted non-native bromes and fescues. Some grasslands are
5 interspersed with locust, cherry, and elm trees. Urban or maintained grounds within the
6 cantonment area are planted with ornamental and shade trees, evergreens, shrubs, and
7 groundcovers. Turf has been established and maintained around buildings (U.S. Army, 2008).

8 The state of Kansas classifies 13 plant species as being noxious in the state. The primary noxious
9 plants on Fort Leavenworth are bull (*Cirsium vulgare*) and Canada (*Cirsium arvense*) thistles.
10 These plants are treated with herbicide on an as-needed basis. Field bindweed (*Convolvulus*
11 *arvensis*), which grows along roadsides, is also occasionally sprayed. Most weed spraying is in
12 response to complaints or when the weed has become a problem (U.S. Army, 2008).

13 **Wildlife**

14 Fort Leavenworth supports many species of mammals, birds, amphibians, reptiles, and fish,
15 which reside, breed, or visit in the less active, less disturbed, areas of the installation. These
16 species include quail (*Odontophoridae*), wild turkey (*Meleagris gallopavo*), white-tailed deer,
17 and a variety of non-game species. Fish species found in aquatic areas of the installation include
18 channel catfish, bluegill, black bass (*Micropterus* spp.) and several non-game fish species. When
19 funding is available, trout are stocked in Merritt and Smith Lakes to enhance the fishery
20 (U.S. Army, 2008).

21 **Threatened and Endangered Species**

22 The USFWS list of federally threatened or endangered for Leavenworth County includes six
23 species, not including the recently de-listed bald eagle: American burying beetle (*Necrophorus*
24 *americanus*), Eskimo curlew (*Numenius borealis*), least tern (*Sterna antillarum*), pallid sturgeon
25 (*Scaphirhynchus albus*), piping plover (*Charadrius melodus*), western prairie fringed orchid
26 (*Platanthera praeclara*), and two federal candidate species: sicklefin chub (*Macrhybopsis meeki*)
27 and sturgeon chub (*Macrhybopsis gelida*) (USACE, 2006). These species have not been
28 identified as being present on this installation (USACE, 2006).

29 There are 18 species that have a designated state status and occur within Leavenworth County
30 (U.S. Army, 2008; USACE, 2006), but have not been identified as being present on Fort
31 Leavenworth (USACE, 2006). The Fort has developed an ESMP for one state-listed species, the
32 non-federally listed bald eagle, which is in accordance with Army Regulation 200-3 Natural
33 Resources-Land, Forest and Wildlife Management, and is part of the INRMP (USACE, 2006).

1 **4.15.8.2 Environmental Effects**

2 **No Action Alternative**

3 Fort Leavenworth does not have any federal- or state-listed species or habitats, high quality
4 natural areas, sensitive sites, or sensitive plant species (Fort Leavenworth, 2014; Midwestern
5 Joint Regional Correction Facility Support Elements, 2008; USACE, 2006). Therefore, the
6 implementation of the No Action Alternative would result in minor impacts to biological
7 resources, and the affected environment would remain in its current state. There would not be
8 any significant effects, because Fort Leavenworth would continue to abide by federal and state
9 regulations governing the management of biological resources.

10 **Alternative 1—Implement Force Reductions**

11 Implementing force reductions under Alternative 1 would result in beneficial impacts to
12 biological resources and habitat within Fort Leavenworth. With a reduced operational tempo
13 because of the reduction in force, habitat would have more time to recover between events that
14 create disturbances. Additionally, conservation management practices would be easier to
15 accomplish with a reduction in mission throughput. While no federal or state-listed species are
16 known to occur on this installation, Fort Leavenworth would continue to conserve other sensitive
17 animal and plant species.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
19 natural resources regulations. Even if the full end-strength reductions were to be realized at Fort
20 Leavenworth, the Army would ensure that adequate staffing remains so that the installation
21 would comply with all mandatory environmental regulations.

22 **4.15.9 Wetlands**

23 **4.15.9.1 Affected Environment**

24 A review of NWI maps identified approximately 1,696 acres of palustrine, freshwater pond, and
25 riverine wetlands within the Fort Leavenworth installation (USFWS, 2010). NWI mapping is an
26 educated delineation based upon interpreting USGS topographic data, the USGS National
27 Hydrography Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the
28 installation was performed.

29 The majority of the wetlands identified through NWI were palustrine forested wetlands;
30 however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine
31 wetlands were also identified (USFWS, 2010). Of the approximately 1,696 acres of wetlands on
32 Fort Leavenworth, approximately 1,600 acres are located within the floodplain of the Missouri
33 River in the northeastern portion of the installation where very little base activity currently
34 occurs. Artificial levees are located in the southwestern portion of the floodplain to protect

1 Sherman Airfield. East of the levees, wetlands are dominated by floodplain forests (USACE,
2 2006). Table 4.15-2 identifies the acres of each wetland type on Fort Leavenworth.

3 **Table 4.15-2. Acres of Wetland Types on Fort Leavenworth**

Wetland Type	Acres
Palustrine forested	1,402
Palustrine scrub-shrub	221
Palustrine emergent	39
Palustrine open water	28
Riverine intermittent	6
Total acres	1,696

4 Source: USFWS (2010)

5 **4.15.9.2 Environmental Effects**

6 **No Action Alternative**

7 Negligible, adverse impacts are anticipated under the No Action Alternative on Fort
8 Leavenworth. Impacts to wetlands from any current projects under construction would have
9 already been assessed and, if required, been properly permitted and mitigated. Activities that
10 occur in range areas would continue at current schedules; however, because these activities occur
11 far from any NWI delineated wetlands, their continuing impacts to wetlands would be negligible.
12 Current management of recreational facilities, such as golf courses, would also continue under
13 the No Action Alternative which could contribute to pollutants entering adjacent wetlands
14 and ponds.

15 **Alternative 1—Implement Force Reductions**

16 Beneficial impacts to wetlands as a result of the implementation of Alternative 1 are anticipated.
17 A force reduction at Fort Leavenworth would mean that ranges would be less used than under the
18 current schedule. Soil would be less disturbed from base activities and training exercises which
19 would further minimize the potential for sediment to run off into wetlands. Wetlands that are
20 currently degraded would have time to regenerate, and their functions and values would begin
21 to restore.

22 Adverse impacts to wetlands could conceivably occur if force reductions decreased
23 environmental staffing levels to a point where environmental compliance could not be properly
24 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
25 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
26 realized at Fort Leavenworth the Army would ensure that adequate staffing remains so that
27 mandated environmental requirements would continue to be met.

1 **4.15.10 Water Resources**

2 **4.15.10.1 Affected Environment**

3 **Surface Water/Watersheds**

4 Fort Leavenworth is located within the Missouri River watershed and this waterbody forms the
5 northern and eastern boundaries of the installation. Surface waters present include numerous
6 intermittent streams, three small man-made lakes, and several unnamed ponds (USACE, 2009).
7 Combined acreage of these surface waters is approximately 12 acres (USACE, 2009). The
8 largest of the streams are Corral Creek and Quarry Creek. Corral Creek flows across the southern
9 portion of the installation to the Missouri River. Quarry Creek begins in the central portion of the
10 installation and drains towards the northeast. Smith Lake and Merritt Lake are located in the
11 southeast portion of Fort Leavenworth.

12 Both Merritt and Smith lakes are on the *2014 Kansas Draft 303(d) List of Impaired Waters* for
13 impairment of aquatic life use due to eutrophication (Kansas DHE, 2014). However, none of the
14 surface waters are listed as impaired. At this time, Fort Leavenworth does not have any state or
15 federal discharge permits (Fort Leavenworth, 2014).

16 **Groundwater**

17 The Missouri River alluvial aquifer contains large amounts of groundwater within the Fort
18 Leavenworth vicinity (USACE, 2009). Alluvial groundwater is also associated with some of the
19 tributaries of the Missouri River, however, these supplies are limited and restricted due to clay
20 layers (U.S. Army, 2004, 2008). In the aquifer, the formations providing water are on average at
21 40 feet below the surface (U.S. Army, 2008). The alluvial aquifer is recharged through
22 precipitation and the flow from the adjacent Missouri River (Kelly, 2004). Fort Leavenworth
23 operates five wells within the Missouri River floodplain in the northeast portion of the
24 installation to supply potable water (Kelly, 2004). Groundwater contamination in the form of
25 trace metals and organic compounds was detected at three sites within in the same floodplain that
26 supports the installation well field (Kelly, 2004).

27 **Water Supply**

28 American Water Enterprises, Inc. operates and maintains the water collection, distribution, and
29 treatment systems (USACE, 2009). Fort Leavenworth uses groundwater drawn from the alluvial
30 aquifer associated with the Missouri River and its tributaries as its potable water source (Kelly,
31 2004; U.S. Army, 2004). As of 2003, approximately 1.5 mgd of raw water (Kelly, 2004) is
32 drawn from five wells in the Fort Leavenworth well field inside the levee protected area of the
33 installation (U.S. Army, 2008). The water treatment plant on the installation treats the water
34 using lime, soda ash, CO₂, and fluoride followed by filtration and chlorination (U.S. Army,
35 2008). The treatment plant has a 5-mgd capacity (CAC, 1992, as cited by U.S. Army, 2004). The
36 Fort Leavenworth water supply system is supported by a pumping station and three storage tanks

1 with a combined capacity of 2,300,000 gallons, and cast iron mains (U.S. Army, 2008;
2 USACE, 2009).

3 **Wastewater**

4 Sewage at Fort Leavenworth is collected by a sanitary sewer system owned and operated by
5 American Water Enterprises, Inc. Underground 30-inch sanitary sewer lines and nine lift/pump
6 stations collect and transport wastewater to the city of Leavenworth treatment plant located off
7 the installation (U.S. Army, 2008; USACE, 2009). The treatment plant is designed to treat an
8 average daily flow of 6.88 mgd and, according to the city it averages over 90 percent removal of
9 pollutants (U.S. DOJ, 2011). Final treated wastewater is discharged to the Missouri River. In
10 areas of suitable topography such as the cantonment and housing areas gravity flow sewers move
11 the wastewater; however in other locations lift stations and force mains are necessary for
12 distribution (U.S. Army, 2004).

13 **Stormwater**

14 Stormwater collection infrastructure for developed areas includes underground drainage pipes,
15 grates, and gutters (USACE, 2009). In less developed areas and upland areas runoff flows to
16 open drainages and ditches, or buried pipes where necessary (U.S. Army, 2004; USACE, 2009).
17 Many of the intermittent unnamed streams on the installation property act as natural stormwater
18 drainages funnels runoff to ponds or Corral or Quarry creeks (U.S. Army, 2008). The physical
19 collection system includes approximately 152,000 linear feet of vitrified clay, polyvinyl chloride,
20 and cast iron pipes with diameters ranging from 3 to 30 inches (USACE, 2009). Within the
21 cantonment and housing areas in the south-central portion of the installation, stormwater moves
22 by gravity through pipes to surface outlets at the Missouri River (USACE, 2009). Stormwater
23 runoff from construction activity disturbing a land area equal to or greater than 1 acre requires an
24 NPDES permit (U.S. Army, 2008). At this time, Fort Leavenworth does not have any state or
25 federal discharge permits (Fort Leavenworth, 2014).

26 **Floodplains**

27 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
28 and any adverse impacts from the use or modification of floodplains when there is a feasible
29 alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the
30 risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to
31 restore and preserve the natural and beneficial values served by floodplains in carrying out its
32 responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance
33 of being equaled or exceeded in any year. The area encompassed within the bend of the Missouri
34 River, in the northeastern portion of the installation, is within the 100-year floodplain and these
35 bottomlands occasionally flood (U.S. Army, 2008; USACE, 2009). A levee designed for the 25-
36 year flood surrounds and protects Sherman AAF located in this area (USACE, 2009).

1 **4.15.10.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts to water resources would continue under the No Action Alternative.
4 Limited outdoor training would continue to occur at Fort Leavenworth ranges and facilities as
5 would potential disturbance to and sedimentation of surface water resources. The installation
6 would continue to strive to meet federal and state water quality criteria, drinking water standards,
7 and floodplain management requirements. Stormwater management would continue as would
8 adherence to state stormwater requirements and BMPs. Current water resources management and
9 compliance activities would continue to occur under this alternative.

10 **Alternative 1—Implement Force Reductions**

11 Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1.
12 Water resources conditions would remain at current levels under Alternative 1. A force reduction
13 would result in fewer training exercises thereby decreasing the potential for surface water
14 disturbance and sedimentation. The decrease in personnel would reduce potable water demand
15 and wastewater treatment allowing additional capacity for other users. Adverse water resources
16 impacts could conceivably occur if personnel cuts prevented environmental compliance from
17 being implemented. The Army is committed to ensuring that personnel cuts will not result in
18 non-compliance with water quality regulations. Even if the full end-strength reductions were to
19 be realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that
20 mandated environmental requirements would continue to be met and implemented. Force
21 reduction at Fort Leavenworth is not anticipated to cause violations of federal and state water
22 quality regulations and discharge permits.

23 **4.15.11 Facilities**

24 **4.15.11.1 Affected Environment**

25 Fort Leavenworth occupies 5,634 acres. Of this area, approximately 2,400 acres include the
26 cantonment area. Fort Leavenworth's mission of leadership, training, and correctional
27 supervision is supported by administrative facilities, educational facilities, conference center,
28 Sherman AAF, National Guard 35th ID Headquarters, and the U.S. Disciplinary Barracks.
29 Additional support facilities at Fort Leavenworth include Family housing, health care,
30 commissary, post exchange, child care, schools, restaurants, recreational facilities, and parks and
31 open spaces (USACE, 2009).

32 **4.15.11.2 Environmental Effects**

33 **No Action Alternative**

34 No impacts are anticipated under the No Action Alternative. Fort Leavenworth would continue
35 to use its existing facilities to support its tenants and missions.

1 **Alternative 1—Implement Force Reductions**

2 Minor impacts to facilities are anticipated as a result of implementation of force reductions under
3 Alternative 1. Force reductions associated with Alternative 1 would reduce requirements for
4 facilities and affect space utilization across the installation. Construction or major expansion
5 projects that had been programmed in the future may not occur or could be downscoped.
6 Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some
7 cases this could require modification of existing facilities. As discussed in Chapter 1, the
8 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
9 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
10 impacts from these activities are not analyzed.

11 **4.15.12 Socioeconomics**

12 **4.15.12.1 Affected Environment**

13 Fort Leavenworth is located in Leavenworth County, Kansas. The ROI includes counties that are
14 generally considered the geographic extent to which the majority of the installation's Soldiers,
15 Army civilians, and contractor personnel and their Families reside. The ROI consists of Fort
16 Leavenworth and Leavenworth County in Kansas. This section provides a summary of
17 demographic and economic characteristics within the ROI.

18 **Population and Demographics**

19 Using 2013 as a baseline, Fort Leavenworth has a total working population of 10,222, consisting
20 of active component Soldiers and Army civilians, students and trainees, other military services,
21 civilians and contractors. Of the total working population, 5,004 were permanent party Soldiers
22 and Army civilians. The population that lives on Fort Leavenworth consists of 7,256 Soldiers
23 (including students), 20 civilians and their 5,815 Family members, for a total on-installation
24 resident population of 13,091. The population of residents on Fort Leavenworth includes many
25 students on permanent change of station (PCS) orders due to the length of their curriculum.
26 Many PCS students would be accompanied by Family members. An estimate of the total
27 population potentially affected by the assessed force reductions is 2,524 personnel with 1,408
28 spouses, and 2,423 children for a total of 6,355. The proportion of the residential population of
29 Fort Leavenworth that are PCS students versus permanent party is not known; therefore,
30 determining an estimate of the population living off the installation is not possible.

31 Fort Leavenworth is home to the Combined Arms Center and provides Combined Arms training
32 and leadership education for Soldiers and Army civilians. Fort Leavenworth averages
33 approximately 2,400 students assigned for training and can accommodate certain percentage in
34 housing on the installation. Any remaining students would be accommodated in local lodging
35 facilities or rental units.

1 In 2012, the ROI had a total population of 77,710, approximately a 2 percent increase from 2010.
 2 The population in the ROI is presented in Table 4.15-3, and the 2012 racial and ethnic
 3 composition of the ROI is presented in Table 4.15-4 (U.S. Census Bureau, 2012a).

4 **Table 4.15-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Leavenworth County, Kansas	77,710	+1.9

5 **Table 4.15-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Kansas	87.2	6.2	1.2	2.6	2.7	11.0	77.5
Leavenworth County, Kansas	85.2	9.5	0.9	1.3	2.9	6.4	79.7

6 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

7 **Employment and Income**

8 In 2012, the total employed labor force in the ROI was 34,087 (U.S. Census, 2012b). Between
 9 2000 and 2012, total employed labor force (including Soldiers and Army civilians) increased in
 10 both the state of Kansas and Leavenworth County (Table 4.15-5) (U.S. Census, 2000 and
 11 2012b). Employment, median home value, household income, and poverty levels are presented
 12 in Table 4.15-5.

13 **Table 4.15-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Kansas	1,395,634	+6.0	127,400	51,273	8.9
Leavenworth County, Kansas	34,087	+7.8	166,600	62,035	7.1

14 Information regarding the workforce by industry for each county within the ROI was obtained
 15 from the U.S. Census Bureau. Information presented below is for the employed labor force.

Leavenworth County

According to the U.S. Census Bureau, the educational services, and health care and social assistance sector accounts for the greatest share of total workforce in Leavenworth County (22 percent). Retail trade is the second largest employment sector (11 percent), followed by public administration (11 percent). The Armed Forces account for 4 percent of the county's workforce. The 10 remaining industries employ 56 percent of the workforce.

Major employers in Leavenworth County include Fort Leavenworth, Leavenworth Public Schools USD #453, and VA Eastern Kansas Health Care (Leavenworth County, 2011).

Housing

According to the Kansas ARNG (2013), in 2009, the Public Affairs Office indicated that 1,583 Family housing units for permanent military personnel are provided by Fort Leavenworth. In addition to the residency on the installation, 716 military personnel and approximately 1,440 Family members occupy housing off the installation (Kansas ARNG, 2013). Approximately half of the off-installation military personnel are estimated to own their own homes, most of them residing in the cities of Leavenworth and Lansing (Kansas ARNG, 2013). Fort Leavenworth created a partnership between the Military and Michaels Military Housing, to form the Frontier Heritage Communities to privatize housing (Frontier Heritage Communities, 2014).

Schools

Fort Leavenworth has its own school district known as Unified School District 207, although it is not a DoD Dependent School. Students who reside on Fort Leavenworth are eligible to attend the district schools. There are three elementary schools on the installation: Eisenhower, MacArthur, and Bradley. Patton Junior High School is also located on Fort Leavenworth. High school students must attend school off the installation. Total enrollment for the 2006-2007 school year was 1,712 students (Fort Leavenworth FMWR, 2014). If students live off the installation, there are many public schools within the surrounding neighborhoods. In total, there are 11 unified school districts within Leavenworth County (Kansas ARNG, 2013). Several colleges and universities are also located in Leavenworth County.

The Fort Leavenworth Education Center on the installation provides a full range of adult, continuing education programs that include college-prep, Associate's, Bachelor's, and Master's degree programs. These education programs on the installation are provided by Central Michigan University; Kansas City, Kansas, Community College; Kansas State University; Upper Iowa University; and Webster University (USACE, 2006).

1 **Public Health and Safety**

2 ***Police Services***

3 General law enforcement on Fort Leavenworth is the responsibility of the Provost Marshal using
4 U.S. Army Police and 500th MP Detachment. Under the Uniform Code of Military Justice,
5 military authorities have off-installation jurisdiction over offenses committed by military
6 personnel. The military law enforcement authorities coordinate their off-installation activities
7 with local law enforcement authorities on a case by case basis.

8 ***Fire and Emergency Services***

9 Fire protection and emergency services are provided on Fort Leavenworth by the DES. The fire
10 department provides all fire protection services on the installation with two fire stations currently
11 in use: Station #1 at 750 McClellan Avenue; and Station #2 at 295 Biddle Avenue
12 (USACE, 2006).

13 ***Medical Facilities***

14 Health care at Fort Leavenworth is provided by the Munson Army Health Center and the
15 Thomas L. Smith Dental Clinic. The main medical facility is the Munson Army Health Center,
16 which provides a Family Medicine Department, Allergy and Immunizations Clinic, Army
17 Wellness Center, optometry, pharmacy services, physical therapy, Nutrition Care Clinic,
18 orthopedics services, radiology, and Medical Management Division (U.S. Army Medical
19 Department, 2014).

20 **Family Support Services**

21 Fort Leavenworth provides its military community and Family members with services, including
22 Army Family Covenant for Families, child development center programs, family child care,
23 Parent Central Services, Parent Involvement, School Age Center, School Support Services, youth
24 center, and youth sports and fitness (Fort Leavenworth FMWR, 2014).

25 **Recreation Facilities**

26 Fort Leavenworth provides its military community, families, and civilians with aquatics
27 programs and pools, an arts and crafts center, an auto craft center, Fort Leavenworth Hunt, a golf
28 course, the Harney Sports Complex, outdoor recreation equipment rental, rod and gun, stables
29 and horses, the Strike Zone Bowling Center, Victory Gardens, and a community entertainment
30 center (Fort Leavenworth FMWR, 2014).

1 **4.15.12.2 Environmental Effects**

2 **No Action Alternative**

3 The operations at Fort Leavenworth would continue to benefit regional economic activity. No
 4 additional impacts to housing, public and social services, public schools, public safety, or
 5 recreational activities are anticipated.

6 **Alternative 1—Implement Force**

7 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
 8 significant impact to socioeconomic resources. The description of impacts to the various
 9 components of socioeconomics is presented below.

10 ***Population and Economic Impacts***

11 Alternative 1 would result in the loss of 2,524²⁰ Army positions (1,789 Soldiers and 735 Army
 12 civilians), each with an average annual income of \$46,760 and \$63,875, respectively. In addition,
 13 this alternative would affect an estimated 3,831 Family members (1,408 spouses and 2,423
 14 dependent children). The total number of Army employees and their Family members directly
 15 affected under Alternative 1 is projected to be 6,355.

16 In accordance with the EIFS analysis a significant impact is defined as a situation when the
 17 forecast economic impact value falls outside the historical positive or negative ranges. Table
 18 4.15-6 shows the deviation from the historical average that would represent a significant change
 19 for each parameter. The last row summarizes the deviation from the historical average for the
 20 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 21 by the EIFS model. Based on the EIFS analysis changes in sales, income, employment and
 22 population in the ROI under Alternative 1 fall outside the historical range and are categorized as
 23 a significant impact.

24 **Table 4.15-6. Economic Impact Forecast System and Rational Threshold Value**
 25 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	7.8	7.8	4.8	2.3
Economic contraction significance value	-6.1	-2.9	-5.2	-2.4
Forecast value	-6.7	-5.8	-12.0	-6.1

²⁰ This number was derived by assuming the loss of 70 percent of Fort Leavenworth’s Soldiers and 30 percent of the Army civilians.

1 Table 4.15-7 shows the predicted impacts to income, employment, and population of the
 2 reductions against the 2012 demographic and economic data. Whereas the forecast value
 3 provides a percent change from the historical average, the percentages in the following table
 4 show the economic impact as a percent of 2012 demographic and economic data. Although not
 5 in exact agreement with the EIFS forecast values, these figures show the same significance
 6 determinations as the EIFS predictions in the previous table.

7 **Table 4.15-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$154,235,700	-2,900 (Direct)	-6,355
		-312 (Induced)	
		-3,213 (Total)	
Total 2012 ROI economic estimates	\$2,874,672,000	34,087	77,710
Percent reduction of 2012 figures	-5.4	-9.4	-8.1

8 Note: Sales estimates are not consistently available from public sources for all counties in the United
 9 States; therefore, the sales data for counties are not presented in this table. The estimated
 10 reduction in total sales from EIFS is described in the paragraphs below.

11 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 12 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 13 cumulative force reductions. Because of the maximum potential loss of 2,524 Soldiers and Army
 14 civilians under Alternative 1, EIFS estimates an additional 376 direct contract service jobs would
 15 also be lost. An additional 312 induced jobs would be lost due to the reduction in demand for
 16 goods and services within the ROI. The total reduction in employment is estimated to be 3,213, a
 17 9.4 percent reduction of the total employed labor force in the ROI of 34,087. Income is estimated
 18 to reduce by \$154.2 million, a 5.4 percent decrease in income in 2012.

19 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$145 million.
 20 Sales tax receipts to local and state governments would also decrease. The average state and
 21 local sales tax rate for Kansas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax
 22 reductions, information was utilized on the proportion of sales that would be subject to sales
 23 taxes on average across the county. According to the U.S. Economic Census, an estimated 16
 24 percent of sales taxes would be subject to sales tax (U.S. Economic Census, 2012). Therefore,
 25 with an estimated reduction of \$144.9 million in sales, would result in a decrease in sales tax
 26 receipts of \$1.9 million.

27 Of the approximately 77,710 people (including those residing on Fort Leavenworth) who live
 28 within the ROI, 6,355 Army employees and their Family members are predicted to no longer
 29 reside in the area under Alternative 1, resulting in a significant population reduction of 8.2
 30 percent. This number likely overstates potential population impacts because some of the people

1 no longer employed by the Army would continue to live and work within the ROI, finding
2 employment in other industry sectors.

3 Additionally, students, trainees, and their Families at Fort Leavenworth may have a substantial
4 impact on the local economy through lodging, eating, and shopping expenditures. Additionally,
5 formal graduation ceremonies generate demand for lodging and dining facilities when Family
6 members attend. The impact to Fort Leavenworth's training missions cannot be determined until
7 after the Army completes its force structure decisions; therefore, analyzing the impact to those
8 missions is beyond the scope of this document.

9 **Housing**

10 The population reduction that would result under Alternative 1 would decrease demand and
11 increase housing availability on the installation and in the region, potentially leading to a
12 reduction in median home values. With an expected decrease in population within the ROI of 8.2
13 percent along with the considerable number of Army personnel and Families living off the
14 installation, housing impacts under Alternative 1 would be adverse and could range from minor
15 to significant.

16 **Schools**

17 Under Alternative 1, the reduction of 2,524 Army personnel would decrease the number of
18 children by 2,423 in the ROI. It is anticipated that school districts that provide education to Army
19 children on the installation would be impacted by this action. The schools on Fort Leavenworth,
20 with current enrollment of 1,712 students, as well as the 11 unified schools districts in
21 Leavenworth County would be most affected under Alternative 1. If enrollment in individual
22 schools is significantly impacted, schools may need to reduce the number of teachers,
23 administrators, and other staff, and potentially close or consolidate with other schools within the
24 same school district should enrollment fall below sustainable levels.

25 The reduction of Soldiers on Fort Leavenworth would result in a loss of Federal Impact Aid
26 dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number
27 of students who are considered "federally connected" and attend district schools. Actual
28 projected dollar amounts cannot be determined at this time due to the variability of appropriated
29 dollars from year to year, and the uncertainty of the actual number of affected school-age
30 children for Army and civilian Families. School districts in the ROI would likely need fewer
31 teachers and materials as enrollment drops, which would offset the reduced Federal Impact Aid.
32 Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant
33 depending on the number of military-connected students attending school.

34 **Public Services**

35 The demand for law enforcement, medical care providers, and fire and emergency service
36 providers on the installation may decrease if Army Soldiers, Army civilians, and their Family

1 members, affected under Alternative 1 move out of the ROI. Adverse impacts to public services
2 could conceivably occur if personnel cuts were to substantially affect hospitals, military police,
3 and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable,
4 however, and therefore are not analyzed. Regardless of any drawdown in military or civilian
5 personnel, the Army is committed to meeting health and safety requirements. Overall, minor
6 impacts to public health and safety would occur under Alternative 1. The impacts to public
7 services are not expected to be significant because the existing service level for the installation
8 and the ROI would still be available.

9 **Family Support Services and Recreation Facilities**

10 Family Support Services and recreation facilities would experience reduced demand and use and
11 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
12 committed to meeting the needs of the remaining population on the installation. Overall, minor
13 impacts to Family Support Services and recreation facilities would occur under Alternative 1.

14 **Environmental Justice and Protection of Children**

15 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
16 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
17 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
18 and adverse human health or environmental effects of its programs, policies, and activities on
19 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
20 disproportionate adverse impact to minorities, economically disadvantaged populations or
21 children in the ROI. Job losses would be experienced across all income levels and economic
22 sectors and spread geographically throughout the ROI. As shown in Table 4.15.-4, minority
23 populations in Leavenworth County are proportionally smaller than in the state as a whole, so
24 there would be no disproportionate effect to environmental justice populations.

25 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
26 federal agencies are required to identify and assess environmental health and safety risks that
27 may disproportionately affect children and to ensure that the activities they undertake do not
28 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
29 were to be realized, the Army is committed to implementing required environmental compliance
30 and meeting the health and safety needs of the people associated with the installation, including
31 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
32 environmental health and safety risks to children within the ROI. Additionally, this analysis
33 evaluates the effects associated with workforce reductions only, and any subsequent actions on
34 the installation that may require ground-disturbing activities that have the potential to result in
35 environmental health and safety risks to children, such as demolishing vacant buildings, is
36 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
37 as appropriate.

1 **4.15.13 Energy Demand and Generation**

2 **4.15.13.1 Affected Environment**

3 Fort Leavenworth's energy needs are currently met by a combination of electric power and
4 natural gas. During the past decade, Congress has enacted major energy bills and the President
5 has issued Executive Orders that direct federal agencies to address energy efficiency and
6 environmental sustainability. The federal requirements for energy conservation that are most
7 relevant to Fort Leavenworth include the Energy Policy Act of 2005, E.O. 13423 *Strengthening*
8 *Federal Environmental, Energy, and Transportation Management*, issued January 2007, Energy
9 Independence and Security Act of 2007, and E.O. 13514, *Federal Leadership in Environmental,*
10 *Energy, and Economic Performance*, issued October 2009. Fort Leavenworth is responsible for
11 complying with these requirements.

12 **Electricity**

13 Kansas Power and Light Inc. supplies electricity to Fort Leavenworth. Electric facilities are
14 currently owned and operated by the Leavenworth/Jefferson Cooperative. Three substations and
15 15 distribution feeders supply the primary voltage to the installation via above-ground and
16 underground facilities. The larger portions of the Family housing areas and schools on Fort
17 Leavenworth have underground electrical feeder lines. Feeders in and around the airfield and
18 ranges are also underground. Underground facilities are a combination of direct-buried facilities,
19 duct and manhole construction, and cable in conduits (USACE, 2009).

20 **Natural Gas**

21 Seminole Energy is the primary provider of natural gas at Fort Leavenworth. Seminole Energy
22 provides gas via the Southern Star pipeline. All buildings in the cantonment area are heated with
23 natural gas and outlying areas on the installation are heated with propane (USACE, 2009).

24 **4.15.13.2 Environmental Effects**

25 **No Action Alternative**

26 Minor, adverse impacts are anticipated on energy demand and generation. The continued use of
27 outdated, energy-inefficient facilities could hinder Fort Leavenworth's requirement to reduce
28 energy consumption. Some older facilities may require renovations to improve energy efficiency
29 to achieve federal mandate requirements.

30 **Alternative 1—Implement Force Reductions**

31 Minor, beneficial impacts to energy demand are anticipated because force reductions would
32 reduce the installation's overall demand for energy. The installation would also be better
33 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
34 existing buildings or placing them in caretaker status as a result of the reduction in forces is not

1 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
2 these activities on energy demand are not analyzed.

3 **4.15.14 Land Use Conflicts and Compatibility**

4 **4.15.14.1 Affected Environment**

5 **Regional Location and Background**

6 Fort Leavenworth, Kansas is located approximately 38 miles northwest of downtown Kansas
7 City, Missouri, and 20 miles from Kansas City International Airport. Fort Leavenworth is located
8 on the west bluff of the Missouri River just north of the town of Leavenworth, Kansas.
9 Established as a frontier outpost in 1827, the installation provided protection to the northwest fur
10 trade and developing trade with Santa Fe. Throughout the 20th century, officer education became
11 the installation's primary mission and it is now the location of the Army's center for advanced
12 tactical education plus combat development and training (U.S. Army, 2004).

13 There are two important military missions that have assured Fort Leavenworth's unique position
14 in the Nation's military history: the confinement and rehabilitation of military criminals at U.S.
15 Army's central military prison and the post-graduate officer training program. These missions
16 were rooted in the latter half of the 19th century; however, they have continued through the 20th
17 century and into the 21st (U.S. Army, 2009).

18 **Land Use at Fort Leavenworth**

19 Fort Leavenworth occupies approximately 5,634 acres, roughly 2,408 acres of which comprise
20 the garrison area. Approximate boundaries of the garrison are the installation boundary to the
21 south, Sherman Avenue to the east, Hancock and Biddle streets to the west, and Sylvan Trail to
22 the north. Land uses within the garrison area are primarily administrative, residential, and
23 installation support functions that facilitate the military mission. Approximately 213 acres within
24 the garrison are within an NHL District. Also within the garrison, but outside the NHL District,
25 is the Fort Leavenworth National Cemetery, managed by the Veterans Administration
26 (USACE, 2009).

27 Outside the garrison, land use is primarily open space used for limited training and recreation.
28 Approximately 3,480 acres on Fort Leavenworth are unimproved lands covered by forest, water
29 (ponds, lakes, streams), and grassland; 257 acres are open fields; and approximately 1,400 acres
30 improved grounds, including lawns, playgrounds, parks, athletic fields, the golf course, and
31 similar open spaces (USACE, 2009).

32 Land use on the installation is segregated into five zones. The Administrative Zone includes
33 administrative, educational, and headquarters facilities and the U.S. Disciplinary Barracks. The
34 Community Zone contains service and support facilities related to staff and Family health and
35 personal needs, including schools, recreational facilities, and Munson Army Health Center. The

1 Housing Zone consists of large residential neighborhoods in the southwest corner of the
2 installation, neighborhoods interspersed throughout the historic areas, and associated parks and
3 community areas. The Light Industrial Zone contains storage, maintenance, shop, warehouse
4 facilities and the water treatment plant. The Open Space Zone is comprised of all areas outside
5 the other four zones, and is primarily undeveloped or used for low-impact activities
6 (USACE, 2009).

7 **Surrounding Land Use**

8 Land uses surrounding Fort Leavenworth largely consist of residential, agricultural, and
9 municipal uses along with undeveloped forested and open space (USACE, 2006; USACE, 2009).
10 The area outside the northwest portion of the installation is a planned growth area for additional
11 residential development by the city of Leavenworth (USACE, 2009). The Leavenworth County
12 land use plan's Future Land Use Map indicates that lands located west and southwest of Fort
13 Leavenworth are also future growth areas for low-density residential development (Leavenworth
14 County, 2013). Future land use and development in the area surrounding Fort Leavenworth is
15 anticipated to include continued construction of residential, commercial, and industrial facilities,
16 and conversion of farmland to developed uses (USACE, 2009). Existing and planned land uses
17 surrounding Fort Leavenworth are not in conflict with ongoing mission activities and related
18 land uses on the installation.

19 **4.15.14.2 Environmental Effects**

20 **No Action Alternative**

21 Under the No Action Alternative, existing force levels and current U.S. Army mission activities
22 at Fort Leavenworth would continue unchanged. Land uses and their respective distribution
23 throughout the installation would remain identical to existing conditions. Surrounding
24 development outside the installation is expected to grow in intensity over time, but land uses
25 would remain similar in character to those currently present. The potential for land use conflicts
26 or incompatibilities is not expected to change from current conditions; therefore, the No Action
27 Alternative would have no effect on land use, either within or outside the installation.

28 **Alternative 1—Implement Force Reductions**

29 Alternative 1 would involve the implementation of force reductions and would entail a decrease
30 in current U.S. Army mission activities at Fort Leavenworth. Land use conditions both within
31 and outside the installation would be similar to those described under the No Action Alternative.
32 Force reductions could result in decreased overall population growth regionally, and may have a
33 negligible impact to development demand in planned growth areas adjacent to the installation.
34 The potential for land use conflicts or incompatibilities is not expected to change from current
35 conditions; therefore, Alternative 1 would have a negligible impact on land use.

1 **4.15.15 Hazardous Materials and Hazardous Waste**

2 **4.15.15.1 Affected Environment**

3 Fort Leavenworth activities that use hazardous materials are conducted in accordance with
4 applicable federal and state regulations and the Fort Leavenworth, DPW Environmental
5 Division's procedures that provide oversight and guidance to individual units that require
6 hazardous material (U.S. Army, 2008). Several programs to minimize and prevent damage to the
7 environment from the use of hazardous materials are implemented at Fort Leavenworth. These
8 programs include the Fort Leavenworth SPCC Plan, the HWMP, and the Pollution Prevention
9 Plan (Kansas ARNG, 2013).

10 Vehicle operations and maintenance are currently performed by the Logistics Resource
11 Center/DPW vehicle maintenance activity on the installation. Hazardous materials used in
12 transportation vehicle and tactical equipment maintenance include oils, greases, solvents,
13 gasoline, diesel, lead-acid batteries, antifreeze, and refrigerants (U.S. Army, 2008).

14 **Hazardous Waste Treatment, Storage, and Disposal**

15 Typical hazardous wastes at the installation include oily rags, contaminated fuels, greases,
16 aerosol cans, and any solvents that cannot be recycled. The installation HWMP requires that
17 hazardous waste is managed and handled by personnel who are properly trained in hazardous
18 waste handling. The installation program establishes procedures and policies, and assigns
19 responsibilities associated with the generation, handling, management, and disposal of hazardous
20 waste at Fort Leavenworth. The policies and procedures outlined in the plan comply with RCRA;
21 the Kansas Hazardous Waste Generators Program; and other applicable federal, state and local
22 regulations. The DPW Environmental Division provides initial and annual refresher training to
23 representatives of various units operating at Fort Leavenworth that generate hazardous wastes.
24 The training includes specific instruction on the proper procedures for identification, handling,
25 transport, and turn-in of hazardous wastes (U.S. Army, 2008).

26 Fort Leavenworth is monitored by the Kansas Department of Health and Environment under the
27 authority of the Kansas Hazardous Waste Generators Program and RCRA. Fort Leavenworth has
28 developed recycling/minimization efforts to reduce the quantity of waste generated. Lead-acid
29 batteries, fluorescent lamps, and high-intensity light bulbs are recycled (U.S. Army, 2008).

30 **Hazardous Waste Investigation and Remediation Sites**

31 There are multiple waste disposal/landfill areas on the Fort Leavenworth property, and
32 environmental investigations have been conducted at these sites (Louis Berger, 2011). The IRP
33 tracks 74 sites on Fort Leavenworth. These sites include old landfills, contaminated sites,
34 contaminated buildings, incinerators, and other activities that have or had the potential to have
35 significant impacts to the environment. Former industrial and agricultural activities at Fort
36 Leavenworth generated wastes that were stored, treated, or disposed of at the installation

1 according to standard practices at that time. Disposal site contaminants include heavy metals,
2 sewage, chlorinated solvents, mineral spirits, petroleum hydrocarbons, and pesticides.
3 Investigation and remediation of these sites is conducted in accordance with the Fort
4 Leavenworth IRP.

5 Fort Leavenworth implements an Army Defense Environmental Restoration Program IAP that
6 identifies environmental cleanup requirements at each site or area of concern, and proposes a
7 comprehensive, installation-wide approach to investigations and remedial actions. The
8 installation is currently investigating 14 sites, remediating 1 site, and conducting long-term
9 monitoring on 13 sites. Remedial activities include removal of contaminated waste, sludge, or
10 soil; capping; containment; in-situ treatment of soil; and natural attenuation. None of the sites is
11 on the NPL (USACE, 2009).

12 **Other Hazards**

13 An Environmental Baseline Survey was prepared in October 2008 by the U.S. Army Center for
14 Health Promotion and Preventive Medicine (Kansas ARNG, 2013). Additionally, there was no
15 evidence of PCB-containing equipment or transformers, radiological materials, asbestos-
16 containing materials, LBP, or munitions or explosives of concern. Fort Leavenworth is located in
17 an area with elevated background radon levels.

18 **4.15.15.2 Environmental Effects**

19 **No Action Alternative**

20 Minor, adverse impacts are anticipated under the No Action Alternative because of the continued
21 use and generation of hazardous materials and wastes on Fort Leavenworth. The existing types
22 and quantities of hazardous wastes generated on the installation have been accommodated by the
23 existing hazardous waste management system, and all materials and waste would continue to be
24 handled in accordance with all applicable laws, regulations, and plans minimizing potential
25 impacts.

26 **Alternative 1—Implement Force Reductions**

27 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
28 regulations governing the handling, management, disposal, and clean up, as appropriate, of
29 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
30 realized at Fort Leavenworth, the Army would ensure that adequate staffing remains so that the
31 installation would comply with all mandatory environmental regulations.

32 With the force reductions, less hazardous waste could be generated. Because of the reduced
33 numbers of people, the potential for spills would be somewhat reduced during training and
34 maintenance activities.

1 Hazardous materials and wastes would continue to be handled per BMPs that are implemented in
2 compliance with appropriate regulations and as per Fort Leavenworth's hazardous material and
3 waste programs; therefore, minor, adverse impacts are anticipated.

4 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
5 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
6 therefore, potential impacts from these activities are not analyzed.

7 **4.15.16 Traffic and Transportation**

8 **4.15.16.1 Affected Environment**

9 Fort Leavenworth is located west of I-29 and north of I-70; both provide high-speed road access
10 to nearby Kansas City. U.S. Highway 73 and Kansas 92 provide local access and link Fort
11 Leavenworth with I-29 and the Kansas City International Airport. Kansas Highway 7 is another
12 important link to I-70 (USACE, 2009). Kansas 5, U.S. Highway 24-40, Missouri 45 and Kansas
13 192 also provide access (U.S. Army, 2008).

14 Public air transportation is provided primarily by the Kansas City International Airport, located
15 18 miles southeast of the installation. The region is also served by several civil airports,
16 including Kansas City Municipal Airport, Johnson County Executive Airport, Charles B.
17 Wheeler Downtown Airport, and Clay County Regional Airport (USACE, 2009).

18 Sherman AAF on Fort Leavenworth is an approved joint-use military airfield, used both by the
19 Army for military activities and by the city of Leavenworth for civilian flights. No commercial
20 airline operates at the airfield (USACE, 2009).

21 There are no passenger railways serving Fort Leavenworth; Amtrak passenger rail service is
22 currently available through Kansas City's Union Station. The Union-Pacific Railroad crossing
23 the installation provides freight service. There are no public bus services at Fort Leavenworth
24 (USACE, 2009).

25 There are two primary entrances to the installation. The Main Gate (Gate 1) is located at the
26 intersection of U.S. Highway 73 (Metropolitan Street) and Grant Avenue/Seventh Street. The
27 second main entrance (the West Gate or Gate 2), is located at the intersection of County Road 14
28 and Hancock Avenue. A third gate, Sherman Avenue Gate, allows one-way traffic into and out
29 of the cantonment during peak traffic hours (USACE, 2009; U.S. Army, 2008).

30 Grant Avenue is the most convenient access point for vehicular traffic; 80 percent of incoming
31 and outgoing traffic passes through the Main Gate. Grant Avenue is a four-lane road that runs
32 north-south and connects the Main Gate to the north end of the garrison. Bottlenecks and
33 congestion are common along Grant Avenue (USACE, 2009; U.S. Army, 2008).

1 There are 51 miles of improved roads on Fort Leavenworth, primarily within the installation
2 area. Remote portions of the installation are served by dirt or gravel roads (U.S. Army, 2008).

3 **4.15.16.2 Environmental Effects**

4 **No Action Alternative**

5 Under the No Action Alternative, current levels of traffic and associated congestion would
6 continue at Fort Leavenworth, particularly along Grant Avenue on the installation. There would
7 continue to be a minor, adverse impact to transportation.

8 **Alternative 1—Implement Force Reductions**

9 Under Alternative 1, implementing force reduction would have a beneficial impact on traffic on
10 the installation and close to the installation. If the full force reduction of 50 percent of staff were
11 to be implemented, the reduction of traffic congestion and bottlenecks, particularly along Grant
12 Avenue, would be noticeable.

13 **4.15.17 Cumulative Effects**

14 The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Leavenworth
15 consists of Leavenworth County in Kansas. No planned or proposed actions within the ROI have
16 the potential to cumulatively add impacts to Army 2020 alternatives have been identified by
17 the installation.

18 **Reasonably Foreseeable Future Projects on Fort Leavenworth**

19 No reasonably foreseeable future projects on Fort Leavenworth were identified by
20 the installation.

21 **Reasonably Foreseeable Future Projects outside Fort Leavenworth**

22 Reasonably foreseeable future projects outside Fort Leavenworth that would be appropriate for
23 inclusion in the cumulative impacts analysis include construction of roads, hotels and conference
24 centers. Additional construction and development activities, infrastructure improvements, and
25 business and government projects and activities could also potentially affect socioeconomic
26 impacts. Additionally, smaller, less diversified economies will be more vulnerable to the force
27 reductions and provide fewer opportunities to displaced Army employees.

28 **No Action Alternative**

29 There would be no cumulative effects of the foreseeable future actions with the No Action
30 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
31 Alternative would not contribute to any changes.

1 **Alternative 1—Implement Force Reductions**

2 With the exception of socioeconomics, implementation of the Alternative 1 in conjunction with
3 these projects would not result in any significant cumulative effects on resources at
4 the installation.

5 The socioeconomic impact under Alternative 1, as described in Section 4.15.12.2 with a loss of
6 2,542 Soldiers and Army civilians, could lead to significant impacts to the population, regional
7 economy, schools, and housing. Fort Leavenworth is an economic driver of the region,
8 employing over 5,000 on the installation. The relatively smaller, rural economy of the ROI
9 depends on the installation's employment and economic activity. With fewer opportunities for
10 employment, the ROI would likely not be able absorb many of the displaced forces, leading to
11 additional adverse effects on regional economic conditions in the ROI. However, Kansas City,
12 Missouri metropolitan area, within 40 miles of the installation, would provide additional
13 employment opportunities.

14 Stationing changes would also affect regional economic conditions through the jobs and income
15 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,
16 supporting additional jobs, income, taxes, and sales impacts of Soldiers, Army civilians, and
17 their Families. Fort Leavenworth is also home to the Combined Arms Center and provides
18 Combined Arms training and leadership education for Soldiers and Army civilians. Fort
19 Leavenworth averages approximately 2,400 students assigned for training. Cumulative actions
20 could include reduced training opportunities because of the force reductions on Fort
21 Leavenworth. This could lead to further adverse impacts to socioeconomic conditions because of
22 reduced temporary population and visitors and the attendant economic activity, spending, and
23 jobs and income they support. Alternative 1 and the loss of approximately 2,500 Soldiers and
24 Army civilians, in combination with current and foreseeable future actions, could have
25 significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

26 Other infrastructure improvements and construction and development activity would also benefit
27 the regional economy through additional economic activity, jobs, and income in the ROI;
28 however, these benefits would not offset the adverse impacts under Alternative 1 and other
29 adverse cumulative actions. Under Alternative 1, the loss of approximately 2,500 Soldiers, in
30 conjunction with other reasonably foreseeable actions, would have significant impacts to
31 employment, income, tax receipts, housing values, and schools and in ROI.

1 **4.16 Fort Lee, Virginia**

2 **4.16.1 Introduction**

3 Fort Lee was analyzed in the 2013 PEA. Background information on the installation, including
4 location, tenants, mission, and population, is discussed in Section 4.14.1 of the 2013 PEA. The
5 following updates the information provided in the 2013 PEA.

6 Fort Lee, Virginia, provides a training platform for all of the Army's sustainment functions as
7 well as training Navy, Air Force and Marine joint sustainment requirements. Fort Lee is the
8 home of the Combined Arms Support Command (CASCOM) and the Sustainment Center of
9 Excellence (SCOE) providing future logistics capability development, doctrine development and
10 support, as well as leader and IET development. CASCOM also consists of the Army Logistics
11 University, the U.S. Army Quartermaster School, the U.S. Army Ordnance School, the U.S.
12 Army Transportation School and Marine Corps and Air Force Detachments. Together,
13 CASCOM schools train 36 percent of all Army enlisted Soldiers across 57 military occupational
14 specialties, 40 percent of all Army warrant officers in 17 specialties, and 100 percent of Army
15 Sustainment Officers in 7 concentrations, as well as numerous civilian-focused courses.
16 Additionally, for the year ending March 2013, CASCOM had trained 5,718 joint personnel in 60
17 courses and 946 international personnel in various courses.

18 Fort Lee is also home to the Defense Contract Management Agency, the headquarters of the
19 Defense Commissary Agency, Kenner Army Health Clinic, the only two active component
20 FORSCOM Mortuary Affairs Companies in the Army, the Military Entrance Processing Station,
21 the Army Quartermaster Museum, the Army Women's Museum, and is the future home of the
22 Humanitarian Demining Training Center. Since the original analysis presented in the 2013 PEA,
23 the 49th Quartermaster Group was inactivated at Fort Lee, resulting in a loss of 879 Military
24 Personnel. The remaining Permanent Party Military consist almost entirely of instructors and
25 cadre that support training missions on Fort Lee.

26 Fort Lee is located 25 miles south of Richmond, Virginia, in Prince George County situated
27 between the cities of Petersburg and Hopewell. Petersburg, Hopewell, and Colonial Heights
28 together constitute a minor metropolitan area encompassing Fort Lee known as the Tri-Cities.
29 This location lies at a strategic hub of our Nation's infrastructure providing multiple options for
30 moving troops, TDY status personnel and equipment while allowing easy access to our National
31 Command Authority, the United States, and World. Fort Lee is conveniently located near several
32 major cities and military installations throughout the Commonwealth and is less than 2 hours
33 from Washington and provides easy access to seven seaports, all within 1.5 hours driving time,
34 and both the James River and Appomattox River carry barge traffic. Petersburg has also
35 remained a strategic rail hub since before the civil war and has access to many airfields in the
36 immediate area.

1 Fort Lee is situated on 5,678 acres comprising three distinct areas: the cantonment, the Range
 2 Complex (includes North Range), and the Ordnance Campus. Fort Lee’s Range Complex
 3 supports live fire, maneuver, and other specialized training. In addition to training areas and
 4 ranges located on Fort Lee, two nearby military installations support specialized field training
 5 tasks for AIT students and permanent party military personnel. Fort A.P. Hill, located 70 miles
 6 north of Fort Lee, supports field training in Explosive Ordnance Disposal. Fort Pickett, located
 7 45 miles away accommodates specific field training tasks associated with the use of its
 8 drop zone.

9 Fort Lee’s 2011 baseline permanent party population was 6,474. In this SPEA, Alternative 1
 10 assesses a potential population loss of 3,600, including approximately 2,792 permanent party
 11 Soldiers and 746 Army civilians.

12 **4.16.2 Valued Environmental Components**

13 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 14 significant, adverse environmental impacts are anticipated for Fort Lee; however, significant
 15 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 16 4.16-1 summarizes the anticipated impacts to VECs under each alternative.

17 **Table 4.16-1. Fort Lee Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

1 **4.16.3 Air Quality**

2 **4.16.3.1 Affected Environment**

3 Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.14.1.2 because there would be no significant, adverse environmental impacts from
5 implementing alternatives included in the analysis. No changes have occurred to the affected
6 environment since 2013. The Fort Lee area is currently not designated as nonattainment for any
7 criteria pollutants, but Prince George County is a maintenance area for the 1997 O₃ standard
8 (EPA, 2013).

9 **4.16.3.2 Environmental Effects**

10 **No Action Alternative**

11 Under the No Action Alternative, mobile and stationary source emissions at current levels would
12 result in minor, adverse impacts to air quality.

13 **Alternative 1—Implement Force Reductions**

14 Force reductions at Fort Lee would result in minor, long-term, and beneficial impacts to air
15 quality because of reduced operations and training activities and reduced vehicle miles travelled
16 associated with the facility.

17 The relocation of personnel outside of the area because of force reductions could result in
18 negligible, short-term effects on air quality associated with mobile sources. As discussed in
19 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
20 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
21 therefore, potential impacts to air quality from these activities are not analyzed.

22 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
23 quality regulations. Even if the full end-strength reductions were to be realized at Fort Lee, the
24 Army would ensure that adequate staffing remains so that the installation would comply with all
25 mandatory environmental regulations.

26 **4.16.4 Airspace**

27 **4.16.4.1 Affected Environment**

28 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
29 Section 4.14.1.2 because of lack of significant, adverse environmental impacts from
30 implementing alternatives included in that analysis. No changes have occurred to the affected
31 environment since 2013. As described in the 2013 PEA, airspace at Fort Lee is classified as
32 Class E and is utilized primarily through the Fort Lee Aerial Delivery and Field Services

1 Department who perform Sling Load and Low Cost Aerial Delivery Systems training with
2 rotary-wing aircraft.

3 **4.16.4.2 Environmental Effects**

4 **No Action Alternative**

5 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
6 airspace at Fort Lee under the No Action Alternative. For the current analysis, Fort Lee would
7 continue to maintain current airspace operations and current airspace classifications and
8 restrictions are sufficient to meet current airspace requirements. No airspace conflicts are
9 anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

10 **Alternative 1—Implement Force Reductions**

11 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
12 would occur at Fort Lee. Under Alternative 1, implementation of proposed further force
13 reductions is not expected to result in increased adverse impacts. Further, Alternative 1 is not
14 expected to involve major changes to the installation operations or types of activities on Fort Lee
15 with continued airspace utilization by the Fort Lee's Aerial Delivery and Field Services
16 Department. Any impacts as a result of the force reduction would be negligible.

17 **4.16.5 Cultural Resources**

18 **4.16.5.1 Affected Environment**

19 The affected environment for cultural resources at Fort Lee has not changed since 2013, as
20 described in Section 4.14.3 of the 2013 PEA.

21 **4.16.5.2 Environmental Effects**

22 **No Action Alternative**

23 Implementation of the No Action Alternative would result in minor impacts to cultural resources,
24 as described in Section 4.14.2.2 of the 2013 PEA. Activities with the potential to affect cultural
25 resources would continue to be monitored and regulated through the use of existing agreements
26 and/or preventative and minimization measures.

27 **Alternative 1—Implement Force Reductions**

28 As described in Section 4.14.2.2 of the 2013 PEA, Alternative 1 would have a minor impact on
29 cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-
30 compliance with cultural resources regulations. Even if the full end-strength reductions were to
31 be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the
32 installation would comply with all mandatory environmental regulations.

1 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
2 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
3 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
4 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
5 necessary to vacate or demolish structures as a result of force reductions, the installation would
6 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
7 consultation to avoid, minimize, and/or mitigate these effects.

8 The effects of this alternative are considered to be similar to the No Action Alternative –future
9 activities with the potential to effect cultural resources would continue to be monitored and the
10 impacts reduced through preventative and minimization measures. This alternative could result
11 in some beneficial effects as a decrease in training activities could reduce the potential for
12 inadvertent disturbance of archaeological resources. Additionally, with fewer people to support,
13 there may be a reduction in the number of undertakings with the potential to affect
14 cultural resources.

15 **4.16.6 Noise**

16 **4.16.6.1 Affected Environment**

17 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
18 Section 4.14.1.2, due to negligible to beneficial impacts as a result of implementing alternatives
19 included in that analysis.

20 **4.16.6.2 Environmental Effects**

21 **No Action Alternative**

22 The 2013 PEA anticipated negligible noise impacts because noise generating activities at the
23 installation would continue at the same levels and intensity as historically experienced. Under the
24 No Action Alternative, negligible impacts would continue.

25 **Alternative 1—Implement Force Reductions**

26 The 2013 PEA concluded that the force reductions at Fort Lee would result in slightly beneficial
27 noise impacts. Decreased use of the Qualifications Training Range and other live-fire ranges, and
28 less frequent military vehicle operation would decrease the frequency and duration of noise
29 generated on Fort Lee. The size of this beneficial impact under Alternative 1 would be similar to
30 those described in the 2013 PEA.

31 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
32 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
33 Fort Lee, the Army would ensure that adequate staffing remains so that the installation would

1 comply with all mandatory environmental regulations including noise ordinances
2 and regulations.

3 **4.16.7 Soils**

4 **4.16.7.1 Affected Environment**

5 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
6 Section 4.14.1.2 due to lack of significant, adverse environmental impacts resulting from the
7 implementation of alternatives included in this analysis. No changes have occurred to the
8 affected environment since 2013.

9 **4.16.7.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible, adverse impacts to
12 wetlands and the affected environment would remain in its present state.

13 **Alternative 1—Implement Force Reductions**

14 Per Section 4.14.1.2 of the 2013 PEA, there would be negligible impacts to soils under
15 Alternative 1. Decreases in military training would reduce erosion levels and the amount of soil
16 displaced as described in the 2013 PEA.

17 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
18 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
19 potential impacts from these activities on soils are not analyzed.

20 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
21 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
22 Lee, the Army would ensure that adequate staffing remains so that the installation would comply
23 with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at Fort Lee
24 would be beneficial and remain the same as those discussed in Section 4.14.1.2 of the 2013 PEA.

25 **4.16.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 26 Species)**

27 **4.16.8.1 Affected Environment**

28 Biological resources are among the VECs excluded from detailed analysis as described in
29 Section 4.14.1.1 of the 2013 PEA due to lack of significant, adverse environmental impacts
30 resulting from the implementation of alternatives included in this analysis. No changes have
31 occurred to the affected environment since 2013.

1 **4.16.8.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in no significant impacts to biological
4 resources and the affected environment would remain in its current state.

5 **Alternative 1—Implement Force Reductions**

6 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to vegetation or
7 wildlife, including threatened or endangered species, would occur on Fort Lee. Fort Lee
8 anticipates that further proposed reduction in forces would not change this finding because
9 Alternative 1 does not involve major changes to installation operations or types of activities
10 conducted on Fort Lee, only a decrease in the frequency of training activities. This conclusion is
11 further evidenced by the fact that currently no listed threatened and endangered species are
12 located on Fort Lee. The Army is committed to ensuring that personnel cuts will not result in
13 non-compliance with natural resources regulations. Even if the full end-strength reductions were
14 to be realized at Fort Lee, the Army would ensure that adequate staffing remains so that the
15 installation would comply with all mandatory environmental regulations.

16 **4.16.9 Wetlands**

17 **4.16.9.1 Affected Environment**

18 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
19 Section 4.14.1.2 due to lack of significant, adverse environmental impacts as a result of
20 implementing alternatives included in that analysis. No changes have occurred to the affected
21 environment since 2013.

22 **4.16.9.2 Environmental Effects**

23 **No Action Alternative**

24 Implementation of the No Action Alternative would result in no significant impacts to wetlands
25 and the affected environment would remain in its present state.

26 **Alternative 1—Implement Force Reductions**

27 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to wetlands
28 would occur on Fort Lee. As noted in the 2013 PEA, Fort Lee anticipates that further proposed
29 reduction in forces will not change this finding, since Alternative 1 does not involve major
30 changes to the installation operations or types of activities conducted on Fort Lee, only a
31 decrease in the frequency of training activities. The installation would continue to manage its
32 wetlands in accordance with the installation INRMP, and ensure that wetland impacts are
33 avoided and/or mitigated according to the Clean Water Act and Section 404 permitting. Impacts
34 to wetlands could conceivably occur if the further force reductions decreased environmental

1 staffing levels to a point where environmental compliance could not be properly implemented.
2 The Army is committed, however, to ensuring that personnel cuts will not result in non-
3 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
4 at Fort Lee, the Army would ensure that adequate staffing remains so that mandated
5 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
6 Fort Lee would remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

7 **4.16.10 Water Resources**

8 **4.16.10.1 Affected Environment**

9 Water resources are among the VECs excluded from detailed analysis as described in Section
10 4.14.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting
11 from the implementation of alternatives included in this analysis. No changes have occurred to
12 the affected environment since 2013.

13 **4.16.10.2 Environmental Effects**

14 **No Action Alternative**

15 Implementation of the No Action Alternative would result in negligible impacts to water
16 resources similar to those described in Section 4.14.1.2 of the 2013 PEA. The water supply and
17 wastewater systems on the installation are adequate to support water resources needs.

18 **Alternative 1—Implement Force Reductions**

19 Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water
20 demand and wastewater volume, would occur on Fort Lee. Reductions in training activities
21 would decrease surface water impacts from sedimentation and stormwater runoff. Fort Lee
22 anticipates that further proposed reduction in forces would not change this finding because
23 Alternative 1 of this SPEA does not involve major changes to installation operations or types of
24 activities conducted on Fort Lee, only a decrease in the frequency of training activities. The
25 installation would continue to manage its water resources in accordance with applicable federal
26 and state water quality criteria, drinking water standards, and stormwater and floodplain
27 management requirements.

28 Adverse water resources impacts could conceivably occur if personnel cuts prevented
29 environmental compliance from being implemented. The Army is committed to ensuring that
30 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
31 end-strength reductions were to be realized at Fort Lee, the Army would ensure that adequate
32 staffing remains so that mandated environmental requirements would continue to be met
33 and implemented.

1 **4.16.11 Facilities**

2 **4.16.11.1 Affected Environment**

3 Facilities is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.14.1.2 because there were no significant, adverse environmental impacts from
5 implementing alternatives included in the analysis. No changes have occurred to the affected
6 environment since 2013. As described in the 2013 PEA, the cantonment area of Fort Lee has
7 facilities necessary for a complete community, including a post exchange, commissary, housing
8 and Family Support Services, and medical and mission-support facilities.

9 **4.16.11.2 Environmental Effects**

10 **No Action Alternative**

11 The 2013 PEA concluded that there would be negligible impacts to facilities under the No
12 Action Alternative at Fort Lee. For the current analysis, Fort Lee would continue to use its
13 existing facilities to support its tenants and missions so impacts to facilities would remain the
14 same as described in the 2013 PEA.

15 **Alternative 1—Implement Force Reductions**

16 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
17 would occur on Fort Lee. Under Alternative 1, implementation of the proposed further force
18 reductions would result in overall minor, adverse impacts. Impacts would occur from the fact
19 that future, programmed construction or expansion projects may not occur or could be
20 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
21 may require modifications to existing facilities; and a greater number of buildings on the
22 installation may become vacant or underutilized due to reduced requirements for facilities, which
23 would have a negative impact on overall space utilization. Some beneficial impacts are also
24 expected as a result of force reductions such as reduced demands for utilities and reduced
25 demands for training facilities and support services. The force reductions would also provide the
26 installation the opportunity to reduce reliance on relocatable facilities and some older, non-
27 standard buildings. Some permanent facilities may be redesignated to support units remaining at
28 Fort Lee to provide more space and facilities that are better able to meet tenant and Army needs.
29 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
30 status as a result of the reduction in forces is not reasonably foreseeable and not part of the scope
31 of this SPEA; therefore, potential impacts from these activities are not analyzed.

32 **4.16.12 Socioeconomics**

33 **4.16.12.1 Affected Environment**

34 The ROI for Fort Lee in this analysis includes those areas that are generally considered the
35 geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor

1 personnel, and their Families reside. The installation is 25 miles south of Richmond, Virginia, in
2 Prince George County situated between the cities of Petersburg and Hopewell. Together,
3 Petersburg, Hopewell, and Colonial Heights constitute a minor metropolitan area, which
4 encompasses Fort Lee, known as the Tri-Cities. These cities do not fall under the jurisdiction of
5 adjacent counties but are located within the ROI.

6 The ROI includes Chesterfield, Dinwiddie, and Prince George counties, and the independent
7 cities of Colonial Heights, Hopewell, and Petersburg. It should be noted that only the Southern
8 Tier of Chesterfield County is considered to be economically connected to Fort Lee. However, in
9 order to be consistent with the 2013 PEA and because the economic model presented in Section
10 4.16.12.2 cannot analyze data for partial counties or independent cities, all of Chesterfield
11 County is included in this analysis.

12 This section provides a summary of demographic and economic characteristics within the ROI.
13 These indicators are described in greater detail in Section 4.14.3 of the 2013 PEA. However,
14 demographic and economic indicators have been updated where more current data are available.

15 **Population and Demographics**

16 Using 2011 as a baseline, Fort Lee has a total working population of 22,487 consisting of active
17 component Soldiers and Army civilians, students and trainees, and other military services,
18 civilians, and contractors. Of the total working population, 6,474 were permanent party Soldiers
19 and Army civilians. The population that lives on Fort Lee consists of 1,654 Soldiers and
20 estimated 4,354 Family members, for a total on-installation resident population of 6,007. No
21 civilians are eligible to live on the installation at this time (Fort Lee, 2014a and 2014b). The
22 portion of Soldiers and Army civilians living off the installation in 2011 was estimated to be
23 12,137 and consists of Soldiers, Army civilians, and their Family members.

24 Fort Lee is home to CASCOM and SCOE, which annually train 36 percent of all Army enlisted
25 Soldiers across 57 military occupational specialties, 40 percent of all Army warrant officers in 17
26 specialties, and all Army Sustainment Officers in 7 concentrations, and provides numerous
27 civilian-focused courses. In 2013, CASCOM trained 5,718 joint personnel in 60 courses and 946
28 international personnel in various courses.

29 The largest mission on Fort Lee is training with the majority of Soldiers supporting this mission
30 as instructors and cadre. Fort Lee is the DoD hub for the field-portion of the Mortuary Affairs
31 mission, referred to as Contingency Fatality Operations. Fort Lee houses the only active
32 component FORSCOM Mortuary Affairs Companies in the Army. In addition, Fort Lee houses
33 the Joint Mortuary Affairs Center, which executes both the Training and Doctrine Command
34 Mortuary Affairs training mission and the DoD Contingency Fatality Operations Executive
35 Agent mission on behalf of and under the oversight of Army G-4.

1 Fort Lee graduated 30,198 AIT trainees from CASCOM’s Ordnance, Quartermaster, and
 2 Transportation Schools in FY 2013. AIT trainees are housed on the installation for the expected
 3 length of their assigned curriculum which may range from 4 weeks to 33 weeks. According to
 4 the 2014 Army Stationing and Installation Plan, Fort Lee has a billet load ranging from 7,000 to
 5 8,000 AIT trainees on a given day and can accommodate up to 9,130 (non-surge) or 11,833
 6 (surge) AIT trainees in Troop Housing (Fort Lee, 2014c).

7 The Army Logistics University on Fort Lee trains approximately 30,000 students annually, 80
 8 percent to 90 percent of whom are TDY students from other installations. In 2013, Fort Lee
 9 trained 25,791 TDY Soldiers, 3,623 civilians, 444 TDY students from other services, and 426
 10 foreign students (Fort Lee, 2014c). TDY students seek lodging on Fort Lee or off the installation
 11 for the expected length of their assigned curriculum, which may range from 2 weeks to 16
 12 weeks. Fort Lee averages a daily population of approximately 1,800 TDY students and Fort Lee
 13 lodging currently offers 1,423 rooms to patrons. The proposed implementation of Army lodging
 14 at Fort Lee could increase the number of available lodging units on the installation (Fort Lee,
 15 2014a). At least 20 percent of Fort Lee’s TDY students are currently referred to lodging
 16 establishments off the installation to honor an agreement between Fort Lee and the
 17 surrounding communities.

18 In 2012, the ROI had a population of 460,688, a 1.8 percent increase from 2010. Compared to
 19 2010, the 2012 population increased in Chesterfield, Dinwiddie, and Prince George counties and
 20 the city of Colonial Heights. The cities of Hopewell and Petersburg experienced a slight decline
 21 in population (Table 4.16-2). As shown in Table 4.16-3, the racial and ethnic composition of
 22 geographies within the ROI varies significantly. In the city of Petersburg, more than 79.0 percent
 23 of residents are African American while in the city of Colonial Heights more than 80.0 percent
 24 of the population is non-Hispanic White alone (U.S. Census Bureau, 2012a).

25 **Table 4.16-2. Population and Demographics, 2012**

Region of Influence Counties / Cities	Population	Population Change 2010–2012 (percent)
Chesterfield County, Virginia	323,862	2.4
Dinwiddie County, Virginia	28,040	0.1
Prince George County, Virginia	36,986	3.5
City of Colonial Heights, Virginia	17,479	0.4
City of Hopewell, Virginia	22,348	-1.1
City of Petersburg, Virginia	31,973	-1.4

1 **Table 4.16-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties/Cities	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Chesterfield County, Virginia	70.4	23.0	0.6	3.5	2.4	7.5	64.5
Dinwiddie County, Virginia	64.7	32.8	0.4	0.5	1.5	2.7	62.7
Prince George County, Virginia	61.9	32.5	0.7	1.8	2.8	6.7	57.1
City of Colonial Heights, Virginia	82.3	10.2	0.4	3.3	2.2	3.9	80.5
City of Hopewell, Virginia	55.4	37.0	0.4	0.8	3.2	6.6	53.1
City of Petersburg, Virginia	16.1	79.1	0.3	0.8	1.8	3.8	15.1

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Information presented below represents an update from the 2013 PEA, which provided
 5 employment and income data from 2009. Between 2000 and 2012, total employment in
 6 Chesterfield and Dinwiddie counties increased while it decreased in Prince George County and
 7 the cities of Colonial Heights, Hopewell, and Petersburg. The city of Hopewell experienced the
 8 most significant decline in total employment (Table 4.16-4) (U.S. Census Bureau, 2000
 9 and 2012b).

10 The median household income in geographies within the ROI varies considerably, ranging from
 11 \$35,126 in the city of Petersburg to \$72,363 in Chesterfield County. Only Chesterfield County
 12 reports a median household income greater than the state average. Median home values in the
 13 ROI are lower than the state average and range from a low of \$120,700 in the city of Petersburg
 14 to \$233,400 in Chesterfield County.

1 The poverty rate in Dinwiddie County and the cities of Hopewell and Petersburg is greater than
 2 the Virginia average (U.S. Census Bureau, 2012b). According to the Report of Fiscal Stress
 3 prepared for FY 2012, the cities of Petersburg and Hopewell were ranked 3rd and 14th in terms
 4 of fiscal stress of the 134 counties and cities in Virginia (Commonwealth of Virginia, 2014).
 5 Prince George County has the fewest number of residents living below the poverty line (Table
 6 4.16-4) (U.S. Census Bureau, 2012b).

7 **Table 4.16-4. Employment and Income, 2012**

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Virginia	3,989,521	+12.6	249,700	63,636	11.1
Chesterfield County, Virginia	159,094	+16.7	233,400	72,363	6.4
Dinwiddie County, Virginia	12,181	+5.6	164,600	51,582	12.9
Prince George County, Virginia	15,124	-7.9	208,600	63,031	6.0
City of Colonial Heights, Virginia	8,277	-0.3	190,200	51,612	7.3
City of Hopewell, Virginia	8,399	-11.3	141,600	37,029	19.8
City of Petersburg, Virginia	12,292	-9.1	120,700	35,126	24.9

8 Information regarding the workforce by industry for each county and independent city within the
 9 ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information
 10 presented below is for the employed labor force.

11 ***Chesterfield County, Virginia***

12 According to the U.S. Census Bureau, the educational services, and health care and social
 13 assistance sector accounts for the greatest share of the total workforce in Chesterfield County (23
 14 percent). Retail trade is the second largest employment sector (12 percent), followed by the
 15 professional, scientific, and management, and administrative and waste management services (10
 16 percent). The finance and insurance, and real estate and rental and leasing sector also accounts
 17 for 10 percent of the total workforce. The Armed Forces account for 1 percent of the workforce
 18 in Chesterfield County. The remaining nine sectors account for 45 percent of the workforce.

1 **Dinwiddie County, Virginia**

2 Similar to Chesterfield County, the primary employment sector in Dinwiddie County is
3 educational services, and health care and social assistance (23 percent). Manufacturing is the
4 second largest sector (14 percent), followed by retail trade (13 percent). Construction is the
5 fourth largest employment sector (11 percent). The Armed Forces account for less than 1 percent
6 of the total workforce in Dinwiddie County. The remaining nine sectors account for 39 percent
7 of the workforce.

8 **Prince George County, Virginia**

9 The educational services, and health care and social assistance sector accounts for the greatest
10 share of total workforce employment in Prince George County (16 percent). Unlike Chesterfield
11 and Dinwiddie counties, the Armed Forces accounts for a significant share of total workforce
12 employment in Prince George County (slightly less than 16 percent). Manufacturing is the third
13 largest employment sector (12 percent), and the public administration and professional,
14 scientific, and management, and administrative and waste management services sectors
15 individually both account for 9 percent. The remaining nine sectors account for 38 percent of the
16 Prince George County workforce.

17 **City of Colonial Heights, Virginia**

18 The educational services, and health care and social assistance sector accounts for the greatest
19 share of the total workforce in the city of Colonial Heights (22 percent). Retail trade is the
20 second largest employment sector (16 percent), followed by manufacturing (10 percent) and arts,
21 entertainment, and recreation, and accommodation and food services (9 percent). The Armed
22 Forces account for less than 1 percent of the city of Colonial Heights workforce. The remaining
23 nine sectors employ 42 percent of the workforce.

24 **City of Hopewell, Virginia**

25 Similar to other areas within the ROI, the educational services, and health care and social
26 assistance sector is the largest employment sectors in the city of Hopewell (24 percent). Retail
27 trade is the second largest employment sector (13 percent), followed by manufacturing and the
28 professional, scientific, and management, and administrative and waste management services
29 (approximately 10 percent each). The Armed Forces account for 3 percent of the city of
30 Hopewell's total workforce. The remaining nine sectors account for 40 percent of the
31 total workforce.

32 **City of Petersburg, Virginia**

33 The primary employment sector in the city of Petersburg is educational services, and health care
34 and social assistance (27 percent). Retail trade is the second largest employment sector (11
35 percent), followed by public administration; manufacturing; and the arts, entertainment, and
36 recreation, and accommodation and food services sectors (approximately 10 percent each). The

1 Armed Forces account for 3 percent of the city of Petersburg's workforce. The remaining nine
2 sectors employ 29 percent of the workforce.

3 **Housing**

4 In 2013, there were 117,313 housing units within a 20 minute drive of Fort Lee. Of this,
5 approximately 78.7 percent were single family units, 17.2 percent were multi-family units, and
6 the remaining 4.1 percent were classified as manufactured, trailers, or other. The vacancy rate of
7 owner-occupied homes was an estimated to be 2.0 percent while the rental vacancy rate was 9.6
8 percent, which is lower than reported in 2010. The overall vacancy rate was 7.9 percent.

9 The housing market analysis prepared for Fort Lee in 2013 reports both the accompanied and
10 unaccompanied housing requirements for military personnel stationed on Fort Lee. The analysis
11 is based on the installation resident population in 2013 and includes active component military
12 and non-Army personnel and excludes TDY students, trainees, and transient/rotational
13 personnel. More than 4,330 active component personnel are eligible for housing on the
14 installation including, 133 unaccompanied personnel, 137 military couples, 193 voluntarily
15 separated personnel, and 2,873 military Families.

16 Of the 1,424 Family housing units on the installation, the Fort Lee Housing Office reports that
17 1,404 are currently occupied, for an occupancy rate of 98.8 percent. This includes two-, three-,
18 and four-bedroom homes. The construction of an additional 84 housing units is anticipated to be
19 complete in July 2014. There are currently 69 families on the waiting list for Family housing.
20 Fort Lee can accommodate 892 unaccompanied personnel. Of this, 249 spaces are currently
21 occupied (Fort Lee, 2014b).

22 **Schools**

23 As described in the 2013 PEA, the enrollment of military-connected students associated with
24 Fort Lee is constantly changing. Soldiers move to Fort Lee with their Families for tours ranging
25 in length from 6 months to 3 years. A survey conducted in November 2011 for CYSS reported
26 that more than 5.0 percent of school enrollment across the ROI was attributable to military-
27 connected students. However, the 2013 PEA states that this is likely an underestimate because of
28 non-response error in the survey.

29 Military-connected students living off the installation attend schools in Chesterfield and
30 Dinwiddie counties and the cities of Colonial Heights, Hopewell, and Petersburg. As reported in
31 the 2013 PEA, military-connected students enrolled in public schools in the abovementioned
32 geographies was an estimated 2,211 students.

33 Military-connected students living on Fort Lee may attend public school in Prince George
34 County, private school, or homeschool. Non-military-connected student enrollment in Prince
35 George County Public Schools has declined in recent years while enrollment of military-

1 connected students in the district has increased. In January 2013, approximately 30.9 percent or
2 1,990 of the 6,432 students enrolled in Prince George County Public Schools are military-
3 connected. In February 2014, total enrollment in Prince George County Public Schools was
4 6,380 students, of which approximately 35 percent to 38 percent was attributable to military-
5 connected students (Elzie, 2014; Fort Lee, n.d.).

6 During the 2011-2012 academic year, Prince George County Public Schools received
7 approximately \$3.6 million in Federal Impact Aid funds, which are associated with the
8 enrollment of military-connected students. In the earlier part of the 2012-2013 academic year,
9 the district had received \$2.08 million in such funds (Fort Lee, n.d.). The total annual allocation
10 of Federal Impact Aid funds to Prince George County Public Schools is not available at this
11 time. In addition, the school district constructed a new elementary school to accommodate
12 increased enrollment associated with more full-time Soldiers on Fort Lee because of BRAC
13 growth (Fort Lee, n.d.).

14 **Public Health and Safety**

15 The Fort Lee Police and Fire departments provide services on the installation. The Fort Lee Fire
16 and Emergency Services Division have mutual aid agreements with Prince George and
17 Dinwiddie counties and cities of Colonial Heights, Hopewell, and Petersburg. On installation
18 medical services are administered by the Kenner Army Health Clinic, which functions solely as
19 an outpatient clinic. The clinic provides care to all active component personnel, retirees, and
20 their Family members within a 20-mile radius of Fort Lee. Services are also provided to AIT
21 students training on Fort Lee. People enrolled in the clinic are referred to off installation civilian
22 and/or military hospitals and practitioners for acute care, specialty services, and long-term
23 medical needs. Additional information regarding public health and safety is provided in the 2013
24 PEA.

25 **Family Support Services**

26 Fort Lee's ACS provides programs, services, facilities, and information for Soldiers and their
27 Families. Services range from child care and youth programs to deployment, employment,
28 financial, and relocation readiness, among others. Children of retired military members are
29 eligible to participate in a variety of programs. The installation's CYSS programs experience
30 relatively high turnover rates because many children are only enrolled as long as their parent(s)
31 or guardian are at Fort Lee, and in many instances this is a period of 6 months for PCS training.

32 The Exceptional Family Member Program works with military Families with special needs to
33 address their unique needs throughout the assignment process and once they have settled into a
34 new installation. In 2013, there were 881 individuals assigned to Fort Lee enrolled in the
35 Exceptional Family Member Program (Eoff, 2013).

1 The Virginia Department of Social Services provides assistance to all state residents, including
2 active component military personnel and their Families stationed on Fort Lee. The agency
3 provides a range of services which includes but is not limited to adult and child protection
4 services, assisted living facilities, and support for adults and children with special health care
5 needs or disabilities. Additional information about Family Support Services is provided in the
6 2013 PEA.

7 **Recreation Facilities**

8 A variety of recreational opportunities are provided through the Fort Lee FMWR. Amenities
9 include batting cages, a skate park, outdoor recreation opportunities, swimming pool, and auto
10 crafts shop, among others. Additional information about recreation facilities is provided in the
11 2013 PEA.

12 **4.16.12.2 Environmental Effects**

13 **No Action Alternative**

14 The continuation of operations at Fort Lee represents a beneficial source of regional economic
15 activity. No additional impacts to housing, public and social services, public schools, public
16 safety, or recreational activities are anticipated.

17 **Alternative 1—Implement Force Reductions**

18 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
19 significant impact to socioeconomic resources. The description of impacts to the various
20 components of socioeconomics is presented below.

21 ***Population and Economic Impacts***

22 Alternative 1 would result in the loss of up to 3,538²¹ Army positions (2,792 Soldiers and 746
23 Army civilians), with an average annual income of \$46,760 and \$78,963, respectively. In
24 addition, this alternative would affect an estimated 5,371 Family members, including 1,974
25 spouses and 3,396 children. The total number of Army employees and their Family members
26 who may be directly affected under Alternative 1 is projected to be 8,909.

27 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
28 forecast value falls outside the historical positive and negative range. Table 4.16-5 shows the
29 deviation from the historical average that would represent a significant change for each
30 parameter. The last row summarizes the deviation from the historical average for the estimated
31 demographic and economic impacts under Alternative 1 (forecast value) as estimated by the

²¹ This number was derived by assuming the loss of 70 percent of Fort Lee's Soldiers and 30 percent of the Army civilians to arrive at 3,538. The 2013 PEA assumed the loss of 35 percent of Fort Lee's Soldiers and 15 percent of the Army civilians to arrive at 2,432.

1 EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales, income,
 2 and employment because the estimate percentage change is within the historical range. However,
 3 there would be a significant impact to population because the estimated percentage change is
 4 outside the historical range.

5 **Table 4.16-5. Economic Impact Forecast System and Rational Threshold Value**
 6 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.7	+3.4	+4.2	+6.3
Economic contraction significance value	-19.5	-9.7	-14.6	-1.5
Forecast value	-1.5	-1.7	-4.3	-2.3

7 Table 4.16-6 summarizes the predicted impacts to income, employment, and population of force
 8 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 9 percent change from the historical average, the percentages in the following table show the
 10 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 11 agreement with the EIFS forecasted values, these figures show the same significance
 12 determinations as the EIFS predictions in the previous table.

13 **Table 4.16-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$242,934,300	-3,993 (Direct)	-8,909
		-921 (Induced)	
		-4,914 (Total)	
Total 2012 ROI economic estimates	\$20,542,881,000	215,367	460,688
Percent reduction of 2012 figures	-1.2	-2.3	-1.9

14 Note: Sales estimates are not consistently available from public sources for all counties in the United
 15 States; therefore, the sales data for counties are not presented in this table. The estimated
 16 reduction in total sales from EIFS is described in the paragraphs below.

17 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 18 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 19 cumulative force reductions. Because of the maximum potential loss of 3,538 Soldiers and Army
 20 civilians under Alternative 1, EIFS estimates an additional 455 direct contract service jobs would
 21 also be lost. An additional 921 induced jobs would be lost because of the reduction in demand
 22 for goods and services within the ROI. The total reduction in employment is estimated to be
 23 4,914, a reduction of 2.3 percent from the total employed labor force in the ROI of 215,367.
 24 Income is estimated to fall by \$242.9 million, a 1.2 percent decrease in income from 2012.

1 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$338.4 million.
2 There would also be a loss in sales tax receipts to local and state governments. The state and
3 average local sales tax rate for Virginia is 5.63 percent (Tax Foundation, 2014). To estimate sales
4 tax reductions, information on the proportion of sales that would be subject to sales taxes on
5 average across the country was utilized. According to the U.S. Economic Census, an estimated
6 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census,
7 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of
8 \$338.4 million resulting in an estimated sales tax receipts decrease of \$3 million under
9 Alternative 1.

10 Of the 460,688 people (including those residing on Fort Lee) who live within the ROI, 3,538
11 military employees and their estimated 5,371 Family members are predicted to no longer reside
12 in the area under Alternative 1, resulting in a significant population reduction of 1.9 percent. This
13 number could overstate potential population impacts because some people no longer employed
14 by the military may continue to live and work within the ROI, finding employment in other
15 industry sectors. However, because of the rural nature of the ROI and the fact that Fort Lee
16 serves as a primary employer and as an economic driver within the ROI, the majority of
17 displaced personnel are likely to move out of the area to seek other opportunities with the Army
18 or elsewhere. There are few employment sectors in the ROI to absorb the number of displaced
19 military employees. A small number of displaced personnel may seek and find work within the
20 ROI; however, others may not be able to find new employment.

21 Additionally, installation students may have a substantial impact on the local economy through
22 lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate
23 demand for lodging and dining facilities when Family members attend. The impact to Fort Lee's
24 training missions cannot be determined until the Army completes its force structure decisions;
25 therefore, analyzing the impact to those missions is beyond the scope of this document.

26 **Housing**

27 The population reduction that would result under Alternative 1 would lead to a decreased
28 housing demand and increased housing availability on the installation and across the larger ROI.
29 Under Alternative 1, occupancy rates in privatized Family housing units would fall below the 96
30 percent requirement. Subsequently, on-installation Family housing would be available upon
31 request by incoming families and may allow other authorized personnel, such as Army civilians,
32 to move onto the installation. In addition, occupancy in barrack spaces would fall below 100
33 percent and could potentially result in these units being converted back to the Garrison
34 Unaccompanied Housing staff requiring daily management (Fort Lee, 2014c).

35 Increased vacancy across the region because of force reductions and/or personnel moving onto
36 the installation has the potential to result in a decrease in median home values across the ROI.
37 Overall, because of the relatively large population of the ROI, the installation reduction that

1 would occur under Alternative 1 has the potential to result in minor impacts to the
2 housing market.

3 **Schools**

4 Military-connected students living on Fort Lee and associated with Soldiers attend schools in
5 Prince George County and accounted for approximately 30.9 percent of total student enrollment
6 in January 2013, a share that has increased in recent years because of the decline of non-military-
7 connected students. During the 2011-2012 academic year, Prince George County Public Schools
8 received approximately \$3.6 million in Federal Impact Aid funds and \$2.1 million in the earlier
9 part of the 2012-2013 academic year. Off installation enrollment by military-connected students
10 is distributed across the larger ROI and numerous school districts.

11 Under Alternative 1, it is possible that enrollment could decrease across the ROI, particularly in
12 Prince George County Public Schools. As described above, the school district receives sizable
13 Federal Impact Aid funds, the allocation of which is based on the number of military-connected
14 students they support. The actual projected loss of Federal Impact Aid funds cannot be
15 determined at this time due to the variability of appropriated dollars from year to year, and the
16 uncertainty regarding the specific impacts to ROI school enrollment. In addition, operating costs
17 may decrease as school districts adjust to reduced enrollment. However, school districts may also
18 have invested in capital improvements or new facilities, which require bond repayment/debt
19 servicing. With decreased revenue for these school districts, it may place additional burden on
20 school districts with potential implications for operations. These are fixed costs that would not be
21 proportionately reduced, such as operational costs (teachers, other staff, and materials).

22 Overall, schools within the ROI could experience significant, adverse impacts from the decline
23 in military-connected student enrollment, particularly in Prince George County, that would result
24 under Alternative 1. If enrollment in individual schools declines significantly, schools may need
25 to reduce the number of teachers, administrators, and other staff, and potentially close or
26 consolidate with other schools within the same school district should enrollment fall below
27 sustainable levels.

28 **Public Services**

29 The demand for law enforcement, medical care providers, and fire and emergency service
30 providers on the installation would decrease if Soldiers, Army civilians, and their Families
31 affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services
32 could conceivably occur if personnel cuts were to substantially affect hospitals, military police,
33 and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable,
34 however, and therefore are not analyzed. Regardless of any drawdown in military or civilian
35 personnel, the Army is committed to meeting health and safety requirements. The impacts to
36 public services are not expected to be significant because the existing service level for the
37 installation and the ROI would still be available.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). As shown in Table 4.16-3, the proportion of minority populations is notably higher in Prince George County and the cities of Hopewell and Petersburg than the proportion in other geographies within the ROI and Virginia as a whole. Of the counties within the ROI, Dinwiddie County and the cities of Hopewell and Petersburg have a higher proportion of populations living below the poverty level when compared to the Virginia average. Because minority and low-income populations are more heavily concentrated in these jurisdictions, there is potential that environmental justice populations to be adversely affected under Alternative 1. However, Alternative 1 is not expected to have a disproportionate adverse impact to minorities, economically disadvantaged populations or children in the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of people associated with the installation, including children. Therefore, it is not anticipated Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.16.13 Energy Demand and Generation

4.16.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA as described in Section 4.14.1.2 because there were no significant, adverse environmental

1 impacts resulting from implementing alternatives included in the analysis. No changes have
2 occurred to the affected environment since 2013. As described in the 2013 PEA, Dominion
3 Virginia Power supplies electricity to Fort Lee and also owns and operates the on-installation
4 distribution system. Atmos Energy currently supplies natural gas to Fort Lee via infrastructure
5 owned by the state and Columbia Gas of Virginia. Fort Lee owns the on-installation natural gas
6 distribution system.

7 **4.16.13.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, adverse impacts to energy demand and generation would be
10 the same as discussed in the 2013 PEA, and there would be negligible impacts. Fort Lee would
11 continue to consume similar types and amounts of energy, and maintenance of existing utility
12 systems would continue.

13 **Alternative 1—Implement Force Reductions**

14 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
15 demand and generation would occur on Fort Lee. Under Alternative 1, minor, beneficial impacts
16 to energy demand are anticipated due to a further reduction in energy consumption associated
17 with the additional force reductions. The installation would also be better positioned to meet
18 energy and sustainability goals.

19 **4.16.14 Land Use Conflicts and Compatibility**

20 **4.16.14.1 Affected Environment**

21 Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
22 Section 4.14.1.2, due to negligible to beneficial impacts as a result of implementing alternatives
23 included in that analysis.

24 **4.16.14.2 Environmental Effects**

25 **No Action Alternative**

26 The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are
27 anticipated. Under the No Action Alternative, no impacts to land use would occur.

28 **Alternative 1—Implement Force Reductions**

29 The 2013 PEA concluded that the force reductions at Fort Lee would result in beneficial impacts
30 to land use because land use compatibility issues on Fort Lee are principally concerned with
31 noise and light generated by training and recreational activities on the installation, and these
32 would decrease with force reductions. Under Alternative 1, impacts would be similar to those
33 described in the 2013 PEA.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
2 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
3 at Fort Lee, the Army would ensure that adequate staffing remains so that the installation would
4 comply with all mandatory environmental regulations including land use ordinances
5 and regulations.

6 **4.16.15 Hazardous Materials and Hazardous Waste**

7 **4.16.15.1 Affected Environment**

8 As described in the 2013 PEA, hazardous materials are used on Fort Lee. Fort Lee has a
9 Hazardous Waste Facility, a Hazardous Material Control Center, and a Solid Waste Recycling
10 Center to handle all types of waste from units and facilities on Fort Lee. Hazardous materials and
11 waste are handled, stored, and transported in accordance with RCRA and U.S. Department of
12 Transportation regulations. No substantial changes have occurred to the affected environment
13 since 2013.

14 **4.16.15.2 Environmental Effects**

15 **No Action Alternative**

16 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
17 Use of hazardous materials and generation of hazardous wastes would continue on Fort Lee in
18 accordance with all applicable laws, regulations, and plans.

19 **Alternative 1—Implement Force Reductions**

20 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from
21 hazardous materials and hazardous waste would occur on Fort Lee. Alternative 1 is not expected
22 to involve major changes to the installation operations or types of activities conducted on Fort
23 Lee. Because of the reduced numbers of people, it is expected that the potential for spills would
24 be reduced further during training and maintenance activities. Fort Lee would continue to
25 implement its hazardous waste management in accordance with its HWMP and applicable
26 regulations under either alternative. The volume of waste generated and material requiring
27 storage would increase slightly as deactivating units would turn in hazardous material for storage
28 to avoid transportation risks.

29 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
30 regulations governing the handling, management, disposal, and clean up, as appropriate, of
31 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
32 realized at Fort Lee, the Army would ensure that adequate staffing remains so that the
33 installation would comply with all mandatory environmental regulations.

1 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
2 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
3 therefore, potential impacts from these activities are not analyzed.

4 **4.16.16 Traffic and Transportation**

5 **4.16.16.1 Affected Environment**

6 Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA
7 as described in Section 4.14.1.2, due to negligible or beneficial impacts as a result of
8 implementing alternatives included in that analysis. No changes have occurred to the affected
9 environment since 2013. As described in the 2013 PEA, the basic roadway in and around Fort
10 Lee is adequate for regional as well as installation traffic. It is characterized by adequate LOS
11 with minimal congestion isolated to key areas during morning and afternoon peaks.

12 **4.16.16.2 Environmental Effects**

13 **No Action Alternative**

14 In the 2013 PEA, due to adequate LOS with minimal congestion, negligible impacts to traffic or
15 transportation are anticipated as a result of the No Action Alternative. With no changes to the
16 affected environment since 2013, these same impacts are expected.

17 **Alternative 1—Implement Force Reductions**

18 In the 2013 PEA, due to reduced traffic volumes it was analyzed that a reduction in forces would
19 result in overall beneficial impacts to traffic and transportation. Under Alternative 1, beneficial
20 impacts are expected for similar reasons, but due to a greater reduction in active component
21 Soldiers and Army civilians, the beneficial impacts are expected to be even greater than analyzed
22 in the 2013 PEA.

23 **4.16.17 Cumulative Effects**

24 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
25 realignment at Fort Lee encompasses Chesterfield, Dinwiddie, and Prince George counties in
26 Virginia; and the independent cities of Colonial Heights, Hopewell, and Petersburg in Virginia.
27 Section 4.14.5 of the 2013 PEA noted numerous planned or proposed actions (including Fort
28 Lee, other agency, and other public/private actions) within the ROI that reasonably could be
29 initiated within the next 5 years and would have the potential to cumulatively add impacts to
30 Alternative 1. A number of the Army's proposed projects have been previously identified in the
31 installation's RPMP, the Final EA for the Army Lodging Facility at Fort Lee, and the completion
32 of the 49th Group draw down on Fort Lee. Additional actions have been identified beyond those
33 noted in the cumulative effects analysis of the 2013 PEA and are noted below.

1 **Reasonably Foreseeable Future Projects on Fort Lee**

2 The Army proposes implementation of the Privatization of Army Lodging at Fort Lee during the
3 same timeframe as the proposed Military and civilian reductions. The Privatization of Army
4 Lodging EA analyzes the environmental and socioeconomic impacts of privatization. Fort Lee
5 currently has 1,423 lodging units. Renovation, demolition and construction options proposed by
6 Privatization of Army Lodging could increase the number of available lodging units on the
7 installation. If the student population decreases, there could be cumulative negative impacts to
8 Fort Lee Lodging operations and to hotels in the local economy. Prior to the completion of the
9 1,000 Room Lodge, Fort Lee guaranteed the local community that 20 percent of all TDY
10 students will be referred to off-installation lodging facilities.

11 Other reasonably foreseeable future projects include the following:

- 12 • 49th Quartermaster Group realignment (reduction of 879 permanent party military
13 personnel)²²
- 14 • 1,000 room lodge (operational)
- 15 • Privatization of Army lodging
- 16 • Phase 2 of Adams Avenue Barracks Project (underway)
- 17 • Humanitarian Demining Training Center moves to Fort Lee
- 18 • Bowling center new construction FY 2014
- 19 • Phase 3 of Adams Avenue Barracks Project (pushed to FY 2017)
- 20 • Kenner Army Health Clinic new construction (pushed to FY 2020 and beyond)

21 **Reasonably Foreseeable Future Projects outside Fort Lee**

22 The region is experiencing little growth with some losses. According to *The Economic Impact of*
23 *Fort Lee*, Fort Lee accounts for \$2.4 billion in economic output for the three-county and three-
24 city region surrounding Fort Lee, approximately 13.62 percent of the total Gross Domestic
25 Product. Expected employment losses include the following:

- 26 • Boehringer Ingelheim Pharmaceuticals will step down its presence in the area and will
27 leave Petersburg by the summer 2014, eliminating roughly 300 jobs.
- 28 • A food product operator, Reinhart Food Services, is moving from Prince George County
29 to northern Virginia, potentially affecting 46 employees.

²² Since the 2011 baseline, the Army has announced the decision to realign the 49th Group. The 879 positions reduced were part of Fort Lee's baseline population of 6,474; therefore, the resulting 879 personnel reduction is part of, not in addition to, the 3,600 reduction analyzed in this SPEA.

1 Major construction projects include the Route 460 improvements project that may be cancelled
2 based on environmental permitting obstacles; this loss of this project would mean additional lost
3 economic growth in the region.

4 **No Action Alternative**

5 The cumulative impacts of the No Action Alternative is essentially the same as was determined
6 in the 2013 PEA, with beneficial to minor impacts to resource areas. Current socioeconomic
7 conditions would persist within the ROI, and the No Action Alternative would not contribute to
8 any changes.

9 **Alternative 1—Implement Force Reduction**

10 Overall, the potential cumulative impacts of Alternative 1 at Fort Lee are anticipated to be
11 significant and adverse for socioeconomics, with beneficial to minor and adverse impacts for the
12 other resources.

13 The socioeconomic impact within the ROI, as described in Section 4.16.12.2 with a reduction of
14 3,538 Soldiers and Army civilians, could lead to significant impact on the population and
15 schools. Current and foreseeable actions include construction and development activities on and
16 off the installation, which would have beneficial impacts to the regional economy through
17 additional economic activity, jobs, and income in the ROI. Additionally, stationing changes, such
18 as the 49th Quartermaster Group realignment, would also affect regional economic conditions
19 through the loss of jobs and income within the region, which would impact additional
20 downstream jobs and income.

21 Fort Lee is home to CASCOM and SCOE; the field-portion of the Mortuary Affairs mission,
22 referred to as Contingency Fatality Operations; the FORSCOM Mortuary Affairs Companies in
23 the Army; the Joint Mortuary Affairs Center; AIT from CASCOM's Ordnance, Quartermaster,
24 and Transportation Schools; and the Army Logistics University. Cumulative actions could
25 include reduced training opportunities because of the force reductions on Fort Lee. This could
26 lead to further adverse impacts to socioeconomic conditions because of reduced temporary
27 population and visitors and the attendant economic activity, spending, and jobs and income
28 they support.

29 Fort Lee is a relatively larger employer in the region; the Armed Forces account for almost 16
30 percent of the workforce in Prince George County. The ROI could likely absorb some of the
31 displaced workers, depending on the economy and labor market in the region. With three major
32 employers leaving the region, it may be the case that the unemployment is increasing and
33 displaced forces would not absorbed into the local labor force, with additional adverse impacts in
34 the ROI. Under Alternative 1, the loss of approximately 3,600 Soldiers and Army civilians, in
35 conjunction with other reasonably foreseeable actions, could have significant impacts to
36 population, employment, tax receipts, housing values, and schools in the ROI.

1 **4.17 Fort Leonard Wood, Missouri**

2 **4.17.1 Introduction**

3 Fort Leonard Wood was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.15.1 of the
 5 2013 PEA.

6 Fort Leonard Wood’s 2011 baseline permanent party population was 9,161. In this SPEA,
 7 Alternative 1 assesses a potential population loss of 5,400, including approximately 4,496
 8 permanent party Soldiers and 821 Army civilians.

9 **4.17.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated for Fort Leonard Wood; however,
 12 significant socioeconomic impacts are anticipated under Alternative 1—Implement Force
 13 Reductions. Table 4.17-1 summarizes the anticipated impacts to VECs under each alternative.

14 **Table 4.17-1. Fort Leonard Wood Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Negligible
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

1 **4.17.3 Air Quality**

2 **4.17.3.1 Affected Environment**

3 Air quality is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
4 Section 4.15.1.2, because there were no significant, adverse environmental impacts that would
5 result from implementing alternatives included in the analysis. No changes have occurred to the
6 affected environment since 2013. The Fort Leonard Wood area has not been designated as a
7 nonattainment area for any criteria pollutants (EPA, 2013).

8 **4.17.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, continuation of mobile and stationary source emissions at
11 current levels would result in minor, adverse impacts to air quality.

12 **Alternative 1—Implement Force Reductions**

13 Force reductions at Fort Leonard Wood would result in minor, long-term, and beneficial impacts
14 to air quality because of reduced operations and training activities and reduced vehicle miles
15 traveled associated with the facility.

16 The relocation of personnel outside of the area because of force reductions could result in
17 negligible, short-term effects on air quality associated with mobile sources. As discussed in
18 Chapter 1, the demolition of existing buildings or the placement of them in caretaker status as a
19 result of the force reductions is not reasonably foreseeable and not part of the scope of this
20 SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
22 quality regulations. Even if the full end-strength reductions were to be realized at Fort Leonard
23 Wood, the Army would ensure that adequate staffing remains so that the installation would
24 comply with all mandatory environmental regulations.

25 **4.17.4 Airspace**

26 **4.17.4.1 Affected Environment**

27 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
28 Section 4.15.1.2, because of lack of significant, adverse environmental impacts from
29 implementing alternatives included in that analysis. No changes have occurred to the affected
30 environment since 2013. Restricted airspace at Fort Leonard Wood (R-4501 A-H) occurs in the
31 southern and eastern portions of the installation and range from as low as the surface to 2,200
32 feet msl up to 18,000 feet msl. The higher elevation restricted airspace occurs in the southern
33 range (U.S. Army, 2011).

1 **4.17.4.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
4 airspace at Fort Leonard Wood under the No Action Alternative. For the current analysis, Fort
5 Leonard Wood would continue to maintain current airspace operations, and current airspace
6 classifications and restrictions are sufficient to meet current airspace requirements. No airspace
7 conflicts are anticipated and impacts to airspace would remain the same as described in the
8 2013 PEA.

9 **Alternative 1—Implement Force Reductions**

10 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
11 would occur at Fort Leonard Wood. Under Alternative 1, implementation of proposed further
12 force reductions would continue to have negligible, adverse impacts to airspace. Reductions at
13 Fort Leonard Wood would not result in changes to airspace classifications, and it would not
14 change the frequency or intensity of activities at Fort Leonard Wood that require the use
15 of airspace.

16 **4.17.5 Cultural Resources**

17 **4.17.5.1 Affected Environment**

18 The affected environment for cultural resources at Fort Leonard Wood has not changed since
19 2013, as described in Section 4.16.1.2 of the 2013 PEA.

20 **4.17.5.2 Environmental Effects**

21 **No Action Alternative**

22 Implementation of the No Action Alternative would result in negligible impacts to cultural
23 resources, as described in Section 4.16.1.2 of the 2013 PEA. Activities with the potential to
24 affect cultural resources would continue to be monitored and regulated through the use of
25 existing agreements and/or preventative and minimization measures.

26 **Alternative 1—Implement Force Reductions**

27 As described in Section 4.16.1.2 of the 2013 PEA, Alternative 1 would have a minor impact on
28 cultural resources. The Army is committed to ensuring that personnel
29 cuts will not result in non-compliance with cultural resources regulations. Even if the full end-
30 strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that
31 adequate staffing remains so that the installation would comply with all mandatory
32 environmental regulations.

1 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
2 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
3 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
4 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
5 necessary to vacate or demolish structures as a result of force reductions; the installation would
6 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
7 consultation to avoid, minimize, and/or mitigate these effects.

8 This alternative could result in some beneficial effects because a decrease in training activities
9 could reduce the potential for the inadvertent disturbance of archaeological resources.
10 Additionally, with fewer people to support, there may be a reduction in the number of
11 undertakings with the potential to affect cultural resources.

12 **4.17.6 Noise**

13 **4.17.6.1 Affected Environment**

14 Noise is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
15 Section 4.15.1.2, because of negligible impacts as a result of implementing alternatives included
16 in that analysis.

17 **4.17.6.2 Environmental Effects**

18 **No Action Alternative**

19 The 2013 PEA anticipated negligible noise impacts because noise generating activities at the
20 installation would continue at the same levels and intensity as historically experienced. Under the
21 No Action Alternative, negligible impacts to noise would continue to occur.

22 **Alternative 1—Implement Force Reductions**

23 The 2013 PEA concluded that the force reductions at Fort Leonard Wood would result in noise
24 impacts similar to those under the No Action Alternative. Alternative 1 would not include
25 changes to aircraft operations or to the type of weapons training conducted. Negligible impacts
26 under Alternative 1 would be similar to those described in the 2013 PEA.

27 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
28 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
29 Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the
30 installation would comply with all mandatory environmental regulations including noise
31 ordinances and regulations.

1 **4.17.7 Soils**

2 **4.17.7.1 Affected Environment**

3 Soils are among the VECs excluded from detailed analysis in the 2013 PEA, as described in
4 Section 4.15.1.2, because of the lack of significant, adverse environmental impacts resulting
5 from the implementation of alternatives included in this analysis. No changes have occurred to
6 the affected environment since 2013.

7 **4.17.7.2 Environmental Effects**

8 **No Action Alternative**

9 Implementation of the No Action Alternative would result in negligible impacts to soils and the
10 affected environment would remain in its current state.

11 **Alternative 1—Implement Force Reductions**

12 Per Section 4.15.1.2 of the 2013 PEA, negligible impacts to soils would occur under
13 Alternative 1. The installation would continue to manage its resources in accordance with the
14 installation's INRMP.

15 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
16 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
17 potential impacts from these activities on soils are not analyzed.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
19 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
20 Leonard Wood, the Army would ensure that adequate staffing remains so that the installation
21 would comply with all mandatory environmental regulations. Therefore, impacts under
22 Alternative 1 at Fort Leonard Wood would be beneficial and remain the same as those discussed
23 in Section 4.15.1.2 of the 2013 PEA.

24 **4.17.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered
25 Species)**

26 **4.17.8.1 Affected Environment**

27 Fort Leonard Wood is located approximately 120 miles southwest of St. Louis, Missouri, and
28 contains approximately 61,410 acres of land in the Ozark Plateau region. Much of the
29 surrounding land is part of the Mark Twain National Forest. Biological resources are among the
30 VECs excluded from detailed analysis, as described in Section 4.15.1.1 in the 2013 PEA,
31 because of the lack of significant, adverse environmental impacts resulting from the
32 implementation of alternatives included in this analysis. No changes have occurred to the
33 affected environment since 2013.

1 **4.17.8.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in no significant impacts to biological
4 resources and the affected environment would remain in its current state.

5 **Alternative 1—Implement Force Reductions**

6 The 2013 PEA concluded that the implementation of Alternative 1 presented in the 2013 PEA
7 would have no impact on biological resources. Fort Leonard Wood anticipates that further
8 proposed reduction in forces (Alternative 1 presented in the current SPEA) would not change this
9 finding because Alternative 1 does not include activities that would significantly affect fish,
10 wildlife, threatened and endangered species, habitat, natural resources, or vegetation.
11 Additionally, the Army is committed to ensuring that personnel cuts will not result in non-
12 compliance with natural resources regulations. Even if the full end-strength reductions were to be
13 realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the
14 installation would comply with all mandatory environmental regulations.

15 **4.17.9 Wetlands**

16 **4.17.9.1 Affected Environment**

17 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA, as described in
18 Section 4.15.1.2, because of the lack of significant, adverse environmental impacts from
19 implementing alternatives included in that analysis. No changes have occurred to the affected
20 environment since 2013.

21 **4.17.9.2 Environmental Effects**

22 **No Action Alternative**

23 Implementation of the No Action Alternative would result in negligible, adverse impacts to
24 wetlands and the affected environment would remain in its present state.

25 **Alternative 1—Implement Force Reductions**

26 Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under
27 Alternative 1. The installation would continue to manage its wetlands in accordance with the
28 installation INRMP, and ensure that wetland impacts are avoided and/or mitigated for. Impacts
29 to wetlands could conceivably occur if the further force reductions decreased environmental
30 staffing levels to a point where environmental compliance could not be properly implemented.
31 The Army is committed, however, to ensuring that personnel cuts will not result in non-
32 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
33 at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that mandated
34 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at

1 Fort Leonard Wood would remain the same as those discussed in Section 4.15.1.2 of the
2 2013 PEA.

3 **4.17.10 Water Resources**

4 **4.17.10.1 Affected Environment**

5 Water resources are among the VECs excluded from detailed analysis, as described in Section
6 4.15.1.2 of the 2013 PEA, because of the lack of significant, adverse environmental impacts
7 resulting from the implementation of alternatives included in this analysis. No changes have
8 occurred to the affected environment since 2013.

9 **4.17.10.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible impacts to water
12 resources similar to those described in Section 4.15.1.2 of the 2013 PEA. Surface waters and
13 water supply would not be impacted.

14 **Alternative 1—Implement Force Reductions**

15 Under Alternative 1 in the 2013 PEA, negligible impacts to water resources, including water
16 demand and surface water disturbance, would occur on Fort Leonard Wood. Fort Leonard Wood
17 anticipates that further proposed reduction in forces would not change this finding because
18 Alternative 1 of this SPEA does not involve major changes to installation operations or types of
19 activities conducted on Fort Leonard Wood, only a decrease in the frequency of training
20 activities. The installation would continue to manage its water resources in accordance with
21 applicable federal and state water quality criteria, drinking water standards, and stormwater and
22 floodplain management requirements.

23 Adverse impacts could conceivably occur to water resources if personnel cuts prevented
24 environmental compliance from being implemented. The Army is committed to ensuring that
25 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
26 end-strength reductions were to be realized at Fort Leonard Wood, the Army would ensure that
27 adequate staffing remains so that mandated environmental requirements would continue to be
28 met and implemented.

29 **4.17.11 Facilities**

30 **4.17.11.1 Affected Environment**

31 Facilities is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
32 Section 4.15.1.2, because there were no significant, adverse environmental impacts from
33 implementing alternatives included in the analysis. No changes have occurred to the affected

1 environment since 2013. As described in the 2013 PEA, the main cantonment area of Fort
2 Leonard Wood has facilities necessary to support a complete community, including a post
3 exchange, commissary, housing and Family Support Services, and medical and mission-
4 support facilities.

5 **4.17.11.2 Environmental Effects**

6 **No Action Alternative**

7 The 2013 PEA concluded that there would be negligible impacts to facilities under the No
8 Action Alternative at Fort Leonard Wood. For the current analysis, Fort Leonard Wood would
9 continue to use its existing facilities to support its tenants and missions, and impacts to facilities
10 would remain the same as described in the 2013 PEA.

11 **Alternative 1—Implement Force Reductions**

12 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
13 would occur on Fort Leonard Wood. Under Alternative 1, implementation of the proposed
14 further force reductions would result in overall minor, adverse impacts. Impacts would occur
15 from the fact that future, programmed construction or expansion projects may not occur or could
16 be downscoped; moving occupants of older, underutilized, or excess facilities into newer
17 facilities may require modifications to existing facilities; and a greater number of buildings on
18 the installation may become vacant or underutilized due to reduced requirements for facilities,
19 which would have a negative impact on overall space utilization. Some beneficial impacts are
20 also expected as a result of force reductions such as reduced demands for utilities and reduced
21 demands for training facilities and support services. The force reductions would also provide the
22 installation the opportunity to reduce reliance on relocatable facilities and some older, non-
23 standard buildings. Some permanent facilities may be redesignated to support units remaining at
24 Fort Leonard Wood to provide more space and facilities that are better able to meet tenant and
25 Army needs. As discussed in Chapter 1, the demolition of existing buildings or the placement of
26 them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and
27 not part of the scope of this SPEA; therefore, potential impacts from these activities are not
28 analyzed.

29 **4.17.12 Socioeconomics**

30 **4.17.12.1 Affected Environment**

31 Fort Leonard Wood is located in the south-central portion of Pulaski County in Missouri. The
32 ROI consists of Pulaski, Phelps, Laclede, Camden, Maries, Miller, and Texas counties in
33 Missouri. The ROI for Fort Leonard Wood includes those areas that are generally considered the
34 geographic extent to which the majority of the installation's Soldiers, Army civilians, and
35 contractor personnel and their Families reside. It is assumed that personnel purchase the majority

1 of their goods and services within the ROI. This section provides a summary of demographic and
 2 economic characteristics within this region.

3 **Population and Demographics**

4 Using 2011 as a baseline, Fort Leonard Wood has a total working population of 33,215,
 5 consisting of active component Soldiers and Army civilians, students and trainees, other military
 6 services, civilians, and contractors. Of the total working population, 9,161 were permanent party
 7 Soldiers and Army civilians. The population that lives on Fort Leonard Wood consists of 2,706
 8 Soldiers and their 5,190 Family members for a total on-installation resident population of 7,896
 9 (Lloyd, 2014). Finally, the portion of the Soldiers and Army civilian population living off the
 10 installation is estimated to be 16,254 and consists of Soldiers, Army civilians, and their
 11 Family members.

12 Fort Leonard Wood is home to the Maneuver Support Center of Excellence; U.S. Army
 13 Chemical, Biological, Radiological, and Nuclear School; U.S. Army Engineer School; U.S.
 14 Army Military Police School; Joint Transportation; and other training for Soldiers, Marines,
 15 Sailors, Airmen and others. Students are based at Fort Leonard Wood for the expected length of
 16 their assigned curriculum, which may range from 3 days to 30 weeks. Fort Leonard Wood
 17 averages approximately 18,151 students assigned for training and can accommodate up to 16,810
 18 in on-installation barracks. Any remaining students would be accommodated in local lodging
 19 facilities or rental units.

20 The ROI’s population in 2012 was 237,353. Between 2010 and 2012, the population decreased
 21 slightly in Laclede, Phelps, and Miller counties and increased in the remaining ROI counties
 22 (Table 4.17-2). The racial and ethnic composition of the ROI is presented in Table 4.17-3.

23 **Table 4.17-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Camden County, Missouri	43,869	+0.3
Laclede County, Missouri	35,419	-0.4
Maries County, Missouri	8,995	+2.0
Miller County, Missouri	24,810	-0.3
Phelps County, Missouri	45,054	-0.2
Pulaski County, Missouri	53,445	+2.2
Texas County, Missouri	25,761	+0.9

1 **Table 4.17-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Missouri	83.9	11.7	0.5	1.8	2.0	3.7	80.6
Camden County, Missouri	97.1	0.5	0.5	0.5	1.2	2.4	95.0
Laclede County, Missouri	96.2	0.7	0.7	0.5	1.8	2.1	94.3
Maries County, Missouri	97.7	0.4	0.7	0.1	1.1	1.1	96.8
Miller County, Missouri	96.7	0.6	0.6	0.3	1.6	1.6	95.4
Phelps County, Missouri	91.4	2.4	0.8	3	2.2	2.2	89.7
Pulaski County, Missouri	79.2	11.9	1.0	2.8	4.4	9.7	71.6
Texas County, Missouri	93.5	3.5	0.7	0.4	1.9	1.9	91.9

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Between 2000 and 2012, the total employment increased in Pulaski, Phelps, Laclede, Camden,
 5 and Texas counties and in the state of Missouri, while it decreased between 2 and 4 percent in
 6 Maries and Miller counties (Table 4.17-4) (U.S. Census Bureau, 2000 and 2012b). The
 7 proportion of the population living below the poverty level in the ROI counties is similar to that
 8 of the state. Texas County has the highest proportion of its residents living below the poverty
 9 level, 21 percent. In addition, median household income was lowest in Texas County in
 10 comparison with the other ROI counties and the state. Employment, median home value, median
 11 household income, and population living below the poverty level are summarized in
 12 Table 4.17-4.

1 **Table 4.17-4. Employment and Income, 2012**

States and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Missouri	2,802,986	+5	\$138,400	\$47,333	15
Camden County, Missouri	19,291	+18	\$181,500	\$44,577	14
Laclede County, Missouri	15,259	+2	\$92,300	\$39,101	19
Maries County, Missouri	3,957	-4	\$118,600	\$44,885	14
Miller County, Missouri	10,767	-2	\$110,900	\$34,763	19
Phelps County, Missouri	19,396	+9	\$110,400	\$41,388	19
Pulaski County, Missouri	28,074	+32	\$122,000	\$47,251	14
Texas County, Missouri	9,342	+1	\$92,900	\$34,520	21

2 Information regarding the workforce by industry for each county within the ROI was obtained
 3 from the U.S. Census Bureau (U.S. Census Bureau, 2012). Information presented below is for
 4 the employed labor force, including the Armed Forces.

5 ***Camden County, Missouri***

6 According to the U.S. Census Bureau, the primary employment sector in Camden County is the
 7 educational services, and health care and social assistance sector (21 percent). Retail trade is the
 8 second largest sector (14 percent), closely followed by the arts, entertainment, and recreation,
 9 and accommodation and food services (14 percent). The Armed Forces account for less than 1
 10 percent of Camden County’s workforce. The remaining sectors employ 50 percent of
 11 the workforce.

12 ***Laclede County, Missouri***

13 The manufacturing sector is the largest employment sector in Laclede County (26 percent).
 14 Educational services, and health care and social assistance is the second largest sector (16
 15 percent), followed by retail trade (13 percent). The Armed forces account for less than 1 percent
 16 of the Laclede County workforce. The remaining 10 sectors employ 44 percent of the
 17 working population.

1 **Maries County, Missouri**

2 The educational services, and health care and social assistance sector accounts for the greatest
3 share of the total workforce in Maries County (20 percent). Manufacturing is the second largest
4 employment sector (13 percent), followed by public administration (10 percent). The Armed
5 Forces account for less than 1 percent of the Maries County workforce. The remaining sectors
6 employ 56 percent of the total workforce.

7 **Miller County, Missouri**

8 The educational services, and health care and social assistance sector accounts for the greatest
9 share of the total workforce in Miller County (20 percent). Retail trade is the second largest
10 sector (16 percent), followed by construction (11 percent). The Armed Forces account for less
11 than 1 percent of Miller County's workforce. The remaining sectors employ 52 percent of
12 the workforce.

13 **Phelps County, Missouri**

14 The primary employment sector in Phelps County is the educational services, and health care and
15 social assistance sector (30 percent). Retail trade is the second largest sector (14 percent),
16 followed by the arts, entertainment, and recreation, and accommodation and food services sector
17 (11 percent). The Armed Forces accounts for less than 1 percent of total employment in Phelps
18 County. The remaining sectors account for 44 percent of the workforce.

19 **Pulaski County, Missouri**

20 According to the U.S. Census Bureau, the Armed Forces account for the largest employment
21 sector (46 percent) in Pulaski County. Public administration is the second largest sector (13
22 percent), followed by the educational services, and health care and social assistance sector (9
23 percent). The remaining 10 sectors account for 32 percent of the total workforce.

24 **Texas County, Missouri**

25 The educational services, and health care and social assistance sector accounts for the greatest
26 share of the total workforce in Texas County (20 percent). Public administration is the second
27 largest sector (13 percent), closely followed by retail trade (12 percent). The Armed Forces
28 account for 1 percent of Texas County's total employment. The remaining sectors employ 54
29 percent of the working population.

30 Fort Leonard Wood is the leading employer in Pulaski County, followed by the Waynesville
31 R-VI School District, which had 778 employees in 2014. A few counties in the region have a
32 small number of small manufacturers and health care employers, and agriculture remains a
33 pervasive economic activity in the ROI (Fort Leonard Wood, 2014a).

1 **Housing**

2 Housing resources at Fort Leonard Wood were described in the 2013 PEA and include 1,806
3 permanent military Family units. Fort Leonard Wood also has barracks space for 1,304
4 unaccompanied personnel. Additionally, Fort Leonard Wood has privatized Army lodging
5 facilities that can accommodate up to 1,653 guests. Finally, because it is a major training
6 installation, Fort Leonard Wood has trainee barracks that can accommodate up to 16,810
7 students during their training assignments at Fort Leonard Wood (Fort Leonard Wood, 2014b).

8 **Schools**

9 Permanent military Families living on the installation attend Waynesville R-VI Schools.
10 Currently, 5,190 Family members live in Fort Leonard Wood housing, including approximately
11 3,200 school-age children. As described in the 2013 PEA, children of military and civilian
12 employees at Fort Leonard Wood comprise a substantial number of students in the school
13 districts of these counties. Federal aid is provided to schools to compensate for the loss of
14 property tax dollars the districts would otherwise receive if the installation were a non-federal
15 property. The largest school district is the Waynesville R-VI School District with 6,075 students,
16 and it receives far more U.S. Department of Education and DoD Federal Impact Aid than any of
17 the other districts because of its location. The Waynesville R-VI School District has schools
18 located on and off Fort Leonard Wood. The Waynesville R-VI School District's annual revenue
19 is \$75,943,069 with Federal Impact Aid accounting for 25.27 percent. In addition, its annual
20 payroll is \$48,333,000 (Fort Leonard Wood, 2014a).

21 **Public Health and Safety**

22 ***Police Services***

23 The Fort Leonard Wood DES Law Enforcement Branch and Security Operations Branch
24 oversees law enforcement operations, patrols, gate security, training, traffic accidents, and
25 criminal investigations on the installation. City, county, and state police departments provide law
26 enforcement in the ROI.

27 ***Fire and Emergency Services***

28 The Fort Leonard Wood Fire and Emergency Services Branch responds to emergencies
29 involving structures, facilities, transportation equipment, hazardous materials, and natural and
30 human-made disasters; directs fire prevention activities; and conducts public education
31 programs. The Fort Leonard Wood Fire and Emergency Services Branch has mutual aid
32 agreements with Pulaski County and the cities of Saint Robert and Waynesville.

33 ***Medical Facilities***

34 Fort Leonard Wood's medical services available on the installation are administered at the
35 General Leonard Wood Army Community Hospital. The Consolidated Troop Medical Clinic is

1 the designated clinic for all IET and AIT Soldiers assigned to Fort Leonard Wood in a training
2 status. The services provided by Consolidated Troop Medical Clinic include sick calls, physical
3 exams, preparation for overseas movement, case management, laboratory and pharmacy services,
4 physical therapy, radiology, and occupational therapy. Medical facilities located off the
5 installation provide a varied range of primary and specialty health care capability.

6 The General Leonard Wood Army Community Hospital serves a population of 58,813 retirees
7 and their Family members, 12,690 active component Family members, and more than 16,000
8 permanent party Soldiers and Soldiers in training. The hospital also serves as an emergency
9 medical facility for any serious emergency medical events for local nonmilitary connected
10 civilians or civilians traveling through the area on I-44.

11 Active component Family members and retirees and their Family members can receive care at
12 the General Leonard Wood Army Community Hospital's Community Based Primary Care Clinic
13 located off the installation in nearby Saint Robert. Further information on medical facilities is
14 available in the 2013 PEA. Other than the Fort Leonard Wood Hospital, the closest emergency
15 rooms are 30 miles away in Rolla or Lebanon, 45 miles away in Houston, and 50 miles away in
16 Osage Beach. The nearest large hospitals with specialty providers are 90 miles away in
17 Springfield, Missouri, or 105 miles away in Columbia, Missouri (Fort Leonard Wood, 2014a).

18 **Family Support Services**

19 Fort Leonard Wood's ACS is a human service organization with programs and services
20 dedicated to assisting Soldiers and their Families under FMWR. Fort Leonard Wood's CYSS is a
21 division of FMWR. It provides facilities and care for children, as well as sports and instructional
22 classes for children of active component military, DoD civilian, and DoD contractor personnel.
23 Fort Leonard Wood's Youth Sports and Fitness Program offers both individual and team
24 activities and involves not only Fort Leonard Wood teams but also the surrounding community
25 teams. Further information on Family Support Services is available in the 2013 PEA.

26 **Recreation Facilities**

27 Fort Leonard Wood offers its military community, Families, Army civilians, and surrounding
28 communities batting cages, Frisbee, golf, a skate park, auto crafts shop, outdoor swimming pool,
29 bowling center, go-kart race track, 18-hole miniature golf course, 18-hole golf course, fitness
30 centers, outdoor recreation opportunities including access to the Lake of the Ozarks Recreation
31 Area, sports teams, and a public library through FMWR.

32 **4.17.12.2 Environmental Effects**

33 **No Action Alternative**

34 The operations at Fort Leonard Wood would continue to benefit regional economic activity,
35 contributing economic and social benefits as businesses and jobs are drawn to the area. Fort

1 Leonard Wood would continue to provide community services and contribute to the tax base of
 2 the local economy. No additional impacts to housing, public and social services, public schools,
 3 public safety, or recreational activities are anticipated.

4 **Alternative 1—Implement Force Reductions**

5 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
 6 significant impact to socioeconomic resources. The description of impacts to the various
 7 components of socioeconomics is presented below.

8 **Population and Economic Impacts**

9 Alternative 1 would result in the loss of 5,317²³ Army positions (4,496 Soldiers and 821 Army
 10 civilians), each with an average annual income of \$46,760 and \$53,914, respectively. In addition,
 11 this alternative would affect an estimated 2,967 spouses and 5,104 dependent children for a total
 12 estimated potential impact to 8,071 Family members. The total population of Army employees
 13 and their Family members directly affected under Alternative 1 is projected to be 13,388.

14 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 15 forecasted economic impact value falls outside the historical positive or negative range. Table
 16 4.17-5 shows the deviation from the historical average that would represent a significant change
 17 for each parameter. The last row summarizes the deviation from the historical average for the
 18 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 19 by the EIFS model. Based on the EIFS analysis, changes in income, employment, and population
 20 in the ROI under Alternative 1 fall outside the historical range and are categorized as a
 21 significant impact. However, there would not be a significant impact to sales because the
 22 estimated percentage change is within the historical range.

23 **Table 4.17-5. Economic Impact Forecast System and Rational Threshold Value**
 24 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+9.0	+4.6	+5.1	+2.4
Economic contraction significance value	-8.4	-3.5	-4.9	-1.5
Forecast value	-3.3	-3.9	-6.6	-5.2

²³ This number was derived by assuming the loss of 70 percent of Fort Leonard Wood’s Soldiers and 30 percent of the Army civilians to arrive at 5,317. The 2013 PEA assumed the loss of 35 percent of Fort Leonard Wood’s Soldiers and 15 percent of the Army civilians to arrive at 3,864.

1 Table 4.17-6 summarizes the predicted impacts to income, employment, and population of the
 2 reductions against the 2012 demographic and economic data. Whereas the forecast value
 3 provides a percent change from the historical average, the percentages in the following table
 4 show the economic impact as a percent of 2012 demographic and economic data. Although not
 5 in exact agreement with the EIFS forecast values, these figures show the same significance
 6 determinations as the EIFS predictions in the previous table.

7 **Table 4.17-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$299,753,800	-5,990 (direct)	-13,388
		-867 (induced)	
		-6,857 (total)	
Total 2012 ROI economic estimates	\$7,829,150,000	106,086	237,353
Percent reduction of 2012 figures	-3.8	-6.5	-5.6

8 Note: Sales estimates are not consistently available for all counties from public sources; therefore,
 9 comparisons of impacts with current sales estimates are not possible in all cases and, thus, are
 10 not included in this table.

11 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 12 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 13 cumulative force reductions. Because of the maximum potential loss of 5,317 Soldiers and
 14 civilians under Alternative 1, EIFS estimates an additional 673 direct contract service jobs would
 15 also be lost. An additional 867 induced jobs would be lost because of the reduction in demand
 16 for goods and services within the ROI. Total reduction in employment is estimated to be 6,857, a
 17 significant reduction of 6.5 percent of the total employed labor force in the ROI of 106,086.
 18 Income is estimated to reduce by \$299.7 million, a significant decrease of 3.8 percent in income
 19 from 2012.

20 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$318.2 million.
 21 There would also be a loss in sales tax receipts to local and state governments. The state and
 22 average local sales tax for Missouri is 7.6 percent (Tax Foundation, 2014). To estimate sales tax
 23 reductions, information on the proportion of sales that would be subject to sales on average
 24 across the country was used. According to the U.S. Economic Census, an estimated 16 percent of
 25 economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This
 26 percentage and applicable tax rate was applied to the estimated decrease in sales of \$318.2
 27 million resulting in an estimated sales tax receipts decrease of \$3.9 million under Alternative 1.

28 Of the 237,353 people (including those residing on Fort Leonard Wood) who live within the
 29 ROI, 13,388 Army employees and their Family members are predicted to no longer reside in the
 30 area under Alternative 1, resulting in a significant population reduction of 5.6 percent. This
 31 number could overstate potential population impacts because some of the people no longer

1 employed by the military could continue to live and work within the ROI, finding employment in
2 other industry sectors. However, due to the rural nature of the area and Fort Leonard Wood as a
3 dominant employer and economic driver of the ROI, most displaced forces would likely move
4 out of the area to seek other opportunities with the Army or elsewhere. There are few employing
5 sectors in the ROI to absorb displaced military employees. A small number of displaced
6 personnel may seek and find work within the ROI; however, others may not be able to find new
7 employment, with possible implications for the unemployment rate.

8 As stated above, the regional economy is highly dependent on Fort Leonard Wood. Agriculture
9 is the second largest industry in the region followed by healthcare, retail, and education.
10 Counties in the region have small manufacturers and health care employers and tend to be
11 dependent on agriculture. The majority of employment opportunities in the region are near
12 minimum wage. These employment opportunities are often seasonal and typically offer very
13 limited benefit packages. Any workforce reductions at Fort Leonard Wood would have an
14 adverse impact on the region's already-high unemployment rate. Agriculture would likely absorb
15 few of the displaced members of the workforce. For civilian cuts, specialized skill sets may make
16 it difficult to find positions paying at or near those that are provided at Fort Leonard Wood.
17 Professional positions in the region would be substantially reduced, and the capability to attract
18 high technology companies with related skills would be seriously harmed.

19 Installation trainees and students may have a substantial impact on the local economy through
20 lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate
21 demand for lodging and dining facilities when Family members attend. The impact to Fort
22 Leonard Wood's training missions cannot be determined until after the Army completes its force
23 structure decisions; therefore, analyzing the impact to those missions is beyond the scope of
24 this document.

25 **Housing**

26 As stated in the 2013 PEA, the proposed reduction would increase availability of single barracks,
27 single Soldier housing, and Family housing on the installation. It is anticipated that fewer notices
28 of non-availability would be generated, and fewer Soldiers would live off the installation. The
29 population reduction would lead to a decrease in demand for housing and an increase in housing
30 availability in the ROI, potentially resulting in a reduction in median home values. Alternative 1
31 would have an adverse impact on housing throughout the ROI, ranging from minor to significant.

32 **Schools**

33 Under Alternative 1, a reduction of 5,317 Soldiers and Army civilians would result in a reduction
34 of 8,071 Family members of which, 5,104 would be children. Some school districts with schools
35 located on and off Fort Leonard Wood would be affected under Alternative 1. The Waynesville
36 R-VI School District, with approximately 6,000 students, is likely to be affected more than other

1 districts because of its proximity to the installation and the number of military Family members
2 that attend schools in this district. If enrollment in individual schools declines substantially,
3 schools may need to reduce the number of teachers, administrators, and other staff and
4 potentially close or consolidate with other schools within the same school district if enrollment
5 falls below sustainable levels.

6 Several facilities are new or recently renovated, and the districts would likely have capital
7 investments and debt that still need to be serviced even though overall funding levels are
8 reduced. As a result, the Waynesville School District may have to reduce staff even further to
9 continue to support debt servicing, and the quality of education to remaining students could
10 suffer. The loss of Soldiers and Army civilians from Fort Leonard Wood would result in a
11 significant loss of students and Federal Impact Aid revenue for the Waynesville R-VI School
12 District and for other proximate school districts (Fort Leonard Wood, 2014a).

13 The reduction of Soldiers on Fort Leonard Wood would result in a loss of Federal Impact Aid
14 dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number
15 of students who are considered “federally connected” and attend district schools. Actual
16 projected dollar amounts cannot be determined at this time due to the variability of appropriated
17 dollars from year to year and the uncertainty of the actual number of affected school-age
18 children. School districts in the ROI would likely need fewer teachers and materials as
19 enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall, adverse
20 impacts to schools under Alternative 1 would be minor to significant, depending on the reduction
21 in the number of military-connected students attending specific schools.

22 **Public Services**

23 The demand for law enforcement, medical care providers, and fire and emergency service
24 providers on the installation would decrease if Soldiers, Army civilians, and their Family
25 members affected under Alternative 1 move to areas outside the ROI. The loss of Army
26 personnel would likely affect the ability of the General Leonard Wood Army Community
27 Hospital to maintain its status as a full service hospital. The General Leonard Wood Army
28 Community Hospital provides some services that are not otherwise available in the ROI and that
29 are important to the health and safety of Fort Leonard Wood personnel and the
30 regional community.

31 Overall, significant adverse impacts to public health and safety would occur under Alternative 1.
32 Although the level and number of services may decrease at medical facilities on the installation
33 and in the ROI, the Army, regardless of any drawdown in military or civilian personnel, is
34 committed to meeting health and safety requirements.

Family Support Services and Recreation Facilities

Family Support Services and recreation facilities would experience reduced demand and use and subsequently, would require fewer personnel and/or reduced funding; however, the Army is committed to meeting the needs of the remaining population on the installation. As a result, minor impacts to Family Support Services and recreation facilities would occur under Alternative 1.

Environmental Justice and Protection of Children

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides: “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations” (EPA, 1994). There are higher proportions of minority populations in Pulaski County and slightly higher proportions of poverty populations in Laclede, Phelps, Miller and Texas counties when compared to the state’s proportions as a whole. In these areas with higher proportions of environmental justice populations, there is the potential that these populations could be adversely affected under Alternative 1. However, it is not anticipated that Alternative 1 would have disproportionate adverse impacts to minorities, economically disadvantaged populations, or children in the ROI. Job losses would be experienced across all income levels and economic sectors and spread geographically throughout the ROI.

Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are required to identify and assess environmental health and safety risks that may disproportionately affect children and to ensure that the activities they undertake do not result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions were to be realized, the Army is committed to implementing required environmental compliance and meeting the health and safety needs of the people associated with the installation, including children. Therefore, it is not anticipated that implementing Alternative 1 would result in any environmental health and safety risks to children within the ROI. Additionally, this analysis evaluates the effects associated with workforce reductions only, and any subsequent actions on the installation that may require ground-disturbing activities that have the potential to result in environmental health and safety risks to children, such as demolishing vacant buildings, are beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4.17.13 Energy Demand and Generation

4.17.13.1 Affected Environment

Energy demand and generation is among the VECs excluded from detailed analysis in the 2013 PEA, as described in Section 4.15.1.2, because there were no significant, adverse environmental

1 impacts from implementing alternatives included in the analysis. No changes have occurred to
2 the affected environment since 2013. As described in the 2013 PEA, electricity is provided by
3 Sho-Me Power Electrical Cooperative, and natural gas is provided by Omega Pipeline Company.

4 **4.17.13.2 Environmental Effects**

5 **No Action Alternative**

6 The 2013 PEA concluded that there would be negligible impacts to energy demand and
7 generation under the No Action Alternative at Fort Leonard Wood. For the current analysis,
8 maintenance of existing utility systems would continue, Fort Leonard Wood would continue to
9 consume similar types and amounts of energy, and impacts to energy demand would remain the
10 same as described in the 2013 PEA.

11 **Alternative 1—Implement Force Reductions**

12 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
13 demand and generation would occur on Fort Leonard Wood. Under Alternative 1, minor,
14 beneficial impacts to energy are anticipated due to a further reduction in energy consumption
15 associated with the additional force reductions. The installation would also be better positioned
16 to meet energy and sustainability goals.

17 **4.17.14 Land Use Conflicts and Compatibility**

18 **4.17.14.1 Affected Environment**

19 Land use is among the VECs excluded from detailed analysis in the 2013 PEA, as described in
20 Section 4.4.1.2, because of negligible impacts resulting from implementing alternatives included
21 in that analysis. No changes have occurred to the affected environment since 2013.

22 **4.17.14.2 Environmental Effects**

23 **No Action Alternative**

24 The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are
25 anticipated. Under the No Action Alternative, there would be no impacts to land use at Fort
26 Leonard Wood.

27 **Alternative 1—Implement Force Reductions**

28 The 2013 PEA concluded that the force reductions at Fort Leonard Wood would result in land
29 use impacts similar to those anticipated under the No Action Alternative. Under Alternative 1,
30 impacts would be similar to those described in the 2013 PEA: no impacts to land use.

1 The Army is committed to ensuring that personnel cuts will not result in non-compliance of land
2 use ordinances and regulations. Even if the full end-strength reductions were to be realized at
3 Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the
4 installation would comply with all mandatory environmental regulations including land use
5 ordinances and regulations.

6 **4.17.15 Hazardous Materials and Hazardous Waste**

7 **4.17.15.1 Affected Environment**

8 As described in the 2013 PEA, hazardous materials are used on Fort Leonard Wood. Fort
9 Leonard Wood has a 90-day storage facility to handle all types of hazardous waste from units
10 and facilities. Hazardous materials and hazardous waste are handled, stored, and transported in
11 accordance with the RCRA and state and local regulations. No substantial changes have occurred
12 to the affected environment since 2013.

13 **4.17.15.2 Environmental Effects**

14 **No Action Alternative**

15 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
16 Use of hazardous materials and generation of hazardous wastes would continue on Fort Leonard
17 Wood in accordance with all applicable laws, regulations, and plans.

18 **Alternative 1—Implement Force Reductions**

19 The analysis of Alternative 1 in the 2013 PEA concluded that temporary, minor, and adverse
20 impacts from hazardous materials and hazardous waste would occur on Fort Leonard Wood.
21 Alternative 1 in this SPEA is not expected to involve substantial changes to the installation
22 operations or types of activities conducted on Fort Leonard Wood. Because of the reduced
23 numbers of people, it is likely that the potential for spills would be reduced further during
24 training and maintenance activities. Under Alternative 1 in this SPEA, Fort Leonard Wood
25 would continue to implement its hazardous waste management in accordance with its HWMP
26 and applicable regulations. The volume of waste generated and material requiring storage would
27 increase slightly as deactivating units would turn in hazardous material for storage to avoid
28 transportation risks.

29 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
30 regulations governing the handling, management, disposal, and clean up, as appropriate, of
31 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
32 realized at Fort Leonard Wood, the Army would ensure that adequate staffing remains so that the
33 installation would comply with all mandatory environmental regulations.

1 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
2 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
3 therefore, potential impacts from these activities are not analyzed.

4 **4.17.16 Traffic and Transportation**

5 **4.17.16.1 Affected Environment**

6 Transportation resources are among the VECs excluded from detailed analysis in the 2013 PEA,
7 as described in Section 4.15.1.2, because of negligible impacts resulting from implementing
8 alternatives included in that analysis. No changes have occurred to the affected environment
9 since 2013. As described in the 2013 PEA, there are no issues with the current traffic LOS.

10 **4.17.16.2 Environmental Effects**

11 **No Action Alternative**

12 Transportation resources for Fort Leonard Wood would experience a negligible impact under the
13 No Action Alternative. The alternative would not increase traffic, and as described in the 2013
14 PEA, there are no issues with the current traffic LOS.

15 **Alternative 1—Implement Force Reductions**

16 With fewer people, there would be fewer cars and less traffic; therefore, a negligible, beneficial
17 impact is anticipated for Fort Leonard Wood under Alternative 1.

18 **4.17.17 Cumulative Effects**

19 The ROI for the cumulative effects analysis includes the following counties in Missouri:
20 Camden, Laclede, Maries, Miller, Phelps, Pulaski, and Texas. Section 4.15.5 of the 2013 PEA
21 noted a number of past or present actions within the ROI that have the potential to cumulatively
22 add impacts to Army 2020 alternatives. MILCON projects underway or pending starting in the
23 coming year(s) are estimated to total more than \$600 million.

24 **Reasonably Foreseeable Future Projects on Fort Leonard Wood**

25 No additional actions have been identified by the installation beyond those noted in the
26 cumulative effects analysis of the 2013 PEA.

27 **Reasonably Foreseeable Future Projects outside Fort Leonard Wood**

28 The Army is not aware of any reasonably foreseeable future projects outside Fort Leonard Wood
29 for the cumulative impacts analysis. However, there are other projects and actions that affect
30 regional economic conditions and development activities, infrastructure improvements, and
31 business and government projects and activities. Additionally, smaller, less diversified
32 economies will be more vulnerable to the force reductions and provide fewer opportunities to
33 displaced Army employees.

1 **No Action Alternative**

2 Cumulative effects under the No Action Alternative would be essentially the same as was
3 determined in the 2013 PEA and would be beneficial through minor and adverse. Current
4 socioeconomic conditions would persist within the ROI, and the No Action Alternative would
5 not contribute to any changes.

6 **Alternative 1—Implement Force Reductions**

7 Cumulative effects under Alternative 1 would be essentially the same as was determined in the
8 2013 PEA. Overall, the potential cumulative impacts under Alternative 1 at Fort Leonard Wood
9 are anticipated to be significant and adverse for socioeconomics with impacts for the other
10 resources ranging from minor and adverse to beneficial. The socioeconomic impact under
11 Alternative 1, as described in Section 4.17.12.2 with a loss of 5,317 Soldiers and Army civilians,
12 could lead to significant impacts to the population, regional economy, schools, and housing. Not
13 only is Fort Leonard Wood a leading training installation, it is also a leading employer and
14 economic engine for the region, employing over 9,000 civilians in a variety of fields to include
15 information technology, medical, engineering and accounting. Specifically, in Pulaski County,
16 the Armed Forces accounts for 46 percent of the workforce, demonstrating the importance of
17 installation to employment opportunities in the region. The relatively smaller, rural economy of
18 the ROI depends on the installation's employment and economic activity. With fewer
19 opportunities for employment, the ROI would likely not be able absorb many of the
20 displaced forces.

21 Current and reasonably foreseeable actions include MILCON projects and other force re-
22 stationing or reductions. Other services have not finalized military end-strength reduction plans,
23 but these additional reductions could occur. These stationing changes would also affect regional
24 economic conditions through the loss of jobs and income the region. The loss of additional
25 military personnel would result in less spending in the ROI economy, with the loss of additional
26 jobs, income, taxes, and sales impacts.

27 Fort Leonard Wood is home to the Maneuver Support Center of Excellence, U.S. Army
28 Chemical, Biological, Radiological, and Nuclear School, U.S. Army Engineer School, U.S.
29 Army Military Police School, Joint Transportation and other training for Soldiers, Marines,
30 Sailors, Airmen and others. Fort Leonard Wood averages approximately 18,151 students
31 assigned for training at a time. Cumulative actions could include reduced training opportunities
32 because of the force reductions on Fort Leonard Wood. This could lead to further adverse
33 impacts to socioeconomic conditions because of reduced temporary population and visitors and
34 the attendant economic activity, spending, and jobs and income they support.

35 Other infrastructure improvements and construction and development activity would also benefit
36 the regional economy through additional economic activity, jobs, and income in the ROI;
37 however, these benefits would not offset the adverse impacts under Alternative 1. Under

- 1 Alternative 1, the loss of approximately 5,400 Soldiers and Army civilians, in conjunction with
- 2 other reasonably foreseeable actions, would have significant impacts to employment, income, tax
- 3 receipts, housing values, and schools in the ROI.

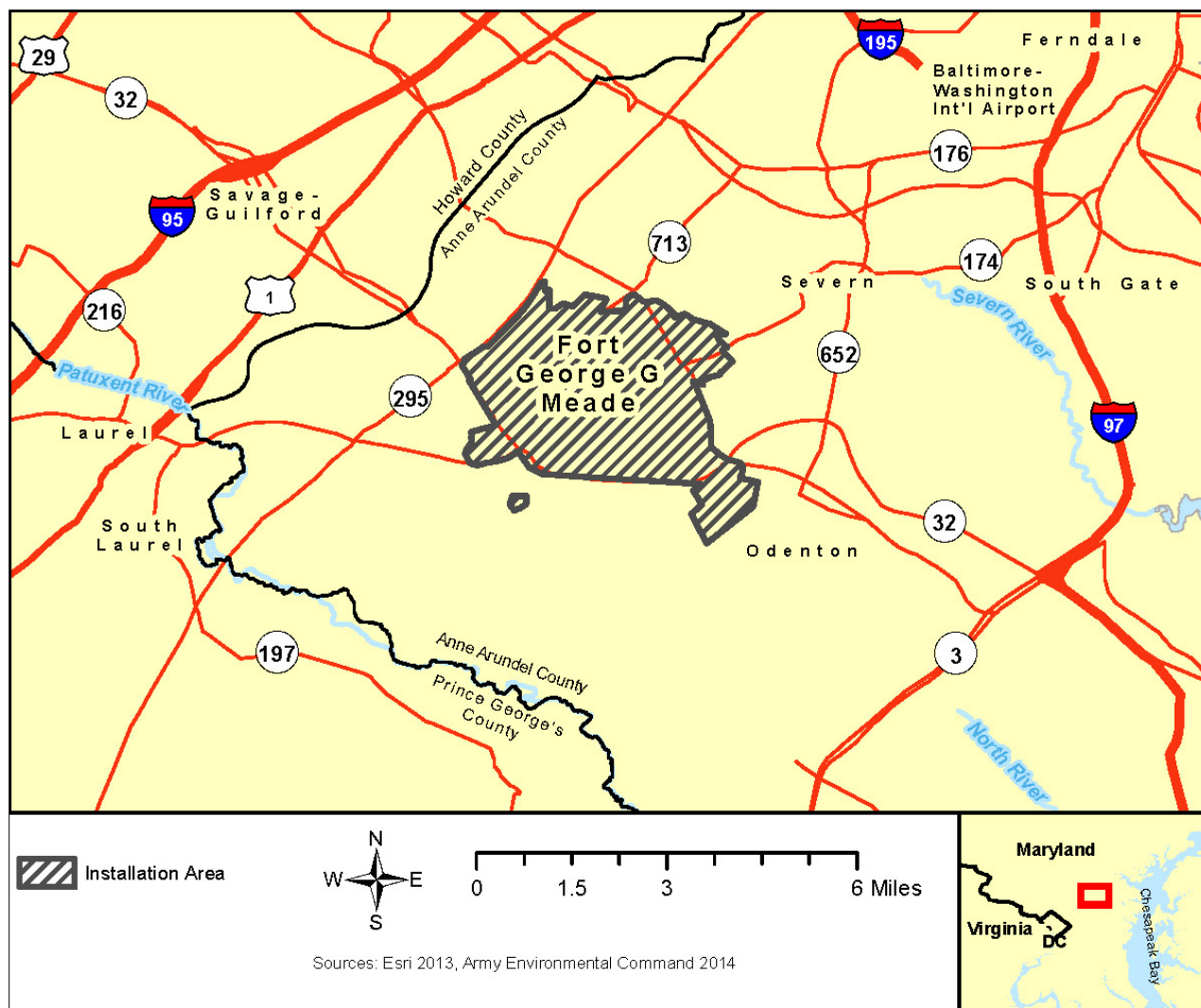
1 **4.18 Fort Meade, Maryland**

2 **4.18.1 Introduction**

3 Fort Meade is a permanent U.S. Army installation located in the northwest corner of Anne
4 Arundel County, Maryland (Figure 4.18-1). The installation is 17 miles southwest of downtown
5 Baltimore, Maryland, and 24 miles northeast of Washington, DC. Annapolis is the Anne Arundel
6 county seat and is located on the Chesapeake Bay approximately 14 miles southeast of the
7 installation. Fort Meade is bounded by the Baltimore-Washington Parkway (MD 295) to the
8 northwest, Annapolis Road (MD 175) to the east, Patuxent Freeway (MD 32) to the south and
9 west, and the MARC Penn Line and Amtrak Line to the southeast.

10 Fort Meade encompasses 5,139 acres and consists of 1,673 separate buildings. Fort Meade was
11 established in 1917 and was an active training facility during World War I and World War II.
12 Fort Meade is the Nation's Preeminent Center for Information, Intelligence, and Cyber
13 Operations. Fort Meade's primary mission is to provide a wide range of services to more than
14 116 partner organizations from the Army, Navy, Air Force, Marines, and Coast Guard, as well as
15 several federal agencies such as the National Security Agency (NSA), EPA, the Office of
16 Personnel Management, and the Army Cyber Command. With more than 56,000 employees, Fort
17 Meade is currently the largest employer in the state of Maryland with more than 50 percent of
18 the staff being civilian workers (Fort Meade, 2014a).

19 Fort Meade's 2013 baseline permanent party population was 6,638. In this SPEA, Alternative 1
20 assesses a potential population loss of 3,500, including approximately 2,640 permanent party
21 Soldiers and 860 Army civilians.



1
2 **Figure 4.18-1. Fort Meade, Maryland**

3 **4.18.2 Valued Environmental Components**

4 For alternatives the Army is considering as part of its 2020 force structure realignment, no
5 significant, adverse environmental or socioeconomic impacts are anticipated for Fort Meade.
6 Table 4.18-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.18-1. Fort Meade Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	No Impacts
Cultural Resources	Negligible	Negligible
Noise	No Impacts	No Impacts
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Negligible
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Negligible	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Minor	Beneficial

2 **4.18.3 Air Quality**

3 **4.18.3.1 Affected Environment**

4 Fort Meade is located in an area in nonattainment for PM_{2.5} and in moderate nonattainment for
 5 O₃. Federal regulations designate AQCRs in violation of NAAQS as nonattainment areas. The
 6 Metropolitan Interstate area, including Anne Arundel County and Fort Meade, is AQCR 115
 7 (EPA, 2013).

8 The Maryland Department of the Environment administers a program for permitting the
 9 construction and operation of new, existing, and modified stationary sources of air emissions in
 10 Maryland. Air permitting is required for many industries and facilities that emit regulated
 11 pollutants. The Maryland Department of the Environment sets permit rules and standards for
 12 emissions sources on the basis of the age and size of the emitting units, attainment status of the
 13 region where the source is located, dates of equipment installation and/or modification, and type
 14 and quantities of pollutants emitted.

15 Fort Meade maintains a synthetic Minor Permit to Operate. The permit requirements include an
 16 annual inventory for all significant stationary sources of air emissions and also cover monitoring,
 17 recordkeeping, and reporting (USACE, 2012). A synthetic minor permit means that Fort Meade,
 18 which is in a non-attainment area where air quality does not meet NAAQS, must keep emissions
 19 for all criteria pollutants below 25 tons per year or apply for a Title V Permit as a major source.

1 The installation is required to submit a comprehensive emissions statement annually. Fort
 2 Meade’s 2012 installation-wide air emissions for significant stationary sources are shown in
 3 Table 4.18-2.

4 **Table 4.18-2. Annual Emissions from Significant Stationary Sources at Fort Meade**
 5 **(2012)**

VOC	NO _x	SO ₂	PM _{2.5}	PM ₁₀
(tons per year)				
13.38	22.39	0.10	0.43	0.81

6 Source: Fort Meade (2013a)

7 **4.18.3.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, the existing levels of emissions would continue to result in
 10 minor impacts to air quality. Emissions would continue to occur from mobile and stationary
 11 sources and would continue to be below the permitted thresholds.

12 **Alternative 1—Implement Force Reductions**

13 Force reductions under Alternative 1 at Fort Meade would result in long-term, beneficial air
 14 quality impacts because of reduced demand for heating/hot water and reduced mobile source
 15 emissions from vehicle trips to and from the facility.

16 Given the population density of AQCR 115, it is likely that the reduced vehicle trips to and from
 17 the installation would occur at a new location within the same airshed, reducing the beneficial
 18 impact. Short-term, negligible impacts to air quality could result from the relocation of personnel
 19 outside of the area due to the force reduction.

20 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
 21 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
 22 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

23 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
 24 quality regulations. Even if the full end-strength reductions were to be realized at Fort Meade,
 25 the Army would ensure that adequate staffing remains so that the installation would comply with
 26 all mandatory environmental regulations.

1 **4.18.4** **Airspace**

2 **4.18.4.1** **Affected Environment**

3 Airspace at Fort Meade is classified as Class B airspace ranging from the surface to 10,000 feet
4 msl based on its proximity to Baltimore/Washington International Thurgood Marshall Airport.
5 No restricted airspace occurs at Fort Meade; however, based on its close proximity to
6 Washington, DC, it is located on the boundary of the Washington, DC, Metropolitan Special
7 Flight Rules Area that requires the establishment of radio communication upon entry, the filing
8 of flight plans, use of discrete transponder codes and traffic plan operations for airports within
9 the Special Flight Rules Area. While located in the Special Flight Rules Area, Fort Meade is
10 outside the boundary of the Washington, DC, Metropolitan Area Flight Restricted Zone, the most
11 limiting of airspace classifications (Federal Register, 2008).

12 Fort Meade is bordered in the south by Tipton Airport, a public airport with a single runway
13 which opened in 1999 on the site of the former Tipton AAF that was closed as a result of the
14 1988 BRAC Act. All Fort Meade airspace needs are addressed through this location (Fort Meade
15 Flying Activity, n.d.).

16 **4.18.4.2** **Environmental Effects**

17 **No Action Alternative**

18 Fort Meade would maintain existing airspace operations under the No Action Alternative. All
19 current airspace restrictions are sufficient to meet current airspace requirements and no airspace
20 conflicts are anticipated. There would be no impacts to airspace at Fort Meade under the No
21 Action Alternative.

22 **Alternative 1—Implement Force Reductions**

23 Airspace restrictions and classifications around Fort Meade are sufficient to meet current
24 airspace requirements and a reduction in force would not alter the current airspace use and would
25 not be projected to require additional airspace restrictions and as there are no air operations or
26 training conducted by the Army at Fort Meade, no impacts to airspace would occur.

27 **4.18.5** **Cultural Resources**

28 **4.18.5.1** **Affected Environment**

29 The affected environment for cultural resources at Fort Meade is the installation footprint. The
30 entirety of Fort Meade has been surveyed for archaeological sites. These surveys have resulted in
31 the identification of 41 archaeological sites; 1 of which has been determined eligible for listing in
32 the NRHP. Of the remaining 40 sites, 33 have been determined not eligible for the NRHP. The
33 remaining seven are cemeteries that are considered not eligible, but are avoided during
34 undertakings due to the presence of human remains (USACE, 2011).

1 Fort Meade has completed architectural surveys for all buildings and structures located on the
2 installation constructed prior to 1960. These surveys have identified five architectural resources
3 that are eligible for listing in the NRHP: the Fort Meade Historic District, the water treatment
4 plant (Building 8688) and three bridges constructed by German Prisoners of War during World
5 War II (USACE, 2011). The Fort Meade Historic District consists of 13 contributing structures,
6 all of which date from the 1920s through the early 1940s (USACE, 2011).

7 There are 15 federally recognized tribes that maintain connections to lands now within the
8 installation. A tribal consultation plan is detailed in Appendix D of the ICRMP. No TCPs or
9 sacred areas have been identified within Fort Meade by affiliated tribes.

10 Fort Meade updated its ICRMP in 2011 to include information on recently evaluated historic
11 buildings and to provide a plan for future cultural resources management and preservation. In
12 addition to the ICRMP, Fort Meade and the Maryland Historical Trust have signed a
13 programmatic agreement that outlines the maintenance and repair standards and guidelines for
14 historic buildings (USACE, 2011).

15 **4.18.5.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, cultural resources would continue to be managed in adherence
18 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
19 installation would continue to consult with the SHPO and applicable tribes on the effects of
20 undertakings that may affect cultural resources. Activities with the potential to affect cultural
21 resources would continue to be monitored and regulated through the use of existing agreements
22 and/or preventative and minimization measures. The effects of the No Action Alternative would
23 be negligible as there are few archaeological sites and historic architectural resources present on
24 the installation and existing protocols and procedures should prevent adverse impacts to
25 these resources.

26 **Alternative 1—Implement Force Reductions**

27 Alternative 1 would have a negligible impacts on cultural resources. The effects of this
28 alternative are considered to be similar to the No Action Alternative—future activities with the
29 potential to effect cultural resources would continue to be monitored and the impacts reduced
30 through preventative and minimization measures. Additionally, with fewer people to support,
31 there may be a reduction in the number of undertakings with the potential to affect cultural
32 resources. The Army is committed to ensuring that personnel cuts will not result in non-
33 compliance with cultural resources regulations. Even if the full end-strength reductions were to
34 be realized at Fort Meade, the Army would ensure that adequate staffing remains so that the
35 installation would comply with all mandatory environmental regulations.

1 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
2 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
3 potential impacts to subsurface archaeological sites and historic structures from these activities
4 are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or
5 demolish structures as a result of troop reductions, the installation would comply with applicable
6 laws, such as the NHPA, and conduct the necessary analyses and consultation to avoid,
7 minimize, and/or mitigate these effects.

8 **4.18.6 Noise**

9 **4.18.6.1 Affected Environment**

10 Fort Meade is relatively quiet with no significant sources of noise. Since the primary mission of
11 the installation is to provide intelligence, administrative, and command functions, it does not
12 have an airfield, heavy industrial operations, or heavy weapons ranges. Vehicular traffic is the
13 major contributor to ambient noise levels at Fort Meade, and two major regional highways are
14 adjacent to the installation: MD 295 (Baltimore-Washington Parkway) to the northwest and MD
15 32 (Patuxent Freeway) to the west and south (USACE, 2007). Other sources of noise include the
16 normal operation of heating, ventilation and air conditioning systems; military unit physical
17 training; lawn maintenance; snow removal; and construction activities. None of these operations
18 or activities produce excessive levels of noise. Occasional helicopter arrivals and departures
19 from Fort Meade associated with Naval Support Activity Washington's mission can increase the
20 local ambient sound levels, but these are generally short in duration (NSA, 2010).

21 Existing ambient noise levels at several locations within Fort Meade have been estimated to be
22 between a day-night average level of 55 to 65 dBA, depending on the noise receptor. Sensitive
23 noise receptors both on and off the installation consist of residential areas, and nighttime ambient
24 noise levels in particular have been shown to be under 55 dBA (NSA, 2009). Therefore, existing
25 ambient noise levels at Fort Meade fall within the "normally acceptable" range as defined by the
26 U.S. Army, FAA, and HUD criteria (NSA, 2010).

27 One potential source of noise originating outside the installation is Tipton Airport, a general
28 aviation public airport located immediately to the south of the Fort Meade boundary. Aircraft
29 operations at the airport are typically conducted from 8:30 a.m.–6:00 p.m. daily, primarily by
30 sport, recreational, private, and business aircraft (Tipton Airport, 2014). Aircraft noise at Fort
31 Meade is low, however, due to the fact that approach paths at Tipton Airport are oriented in an
32 east-west direction and commercial aircraft are not permitted to fly over the NSA campus
33 (NSA, 2010).

1 **4.18.6.2 Environmental Effects**

2 **No Action Alternative**

3 With implementation of the No Action Alternative, no changes in ambient noise levels are
4 anticipated. Existing installation operations and force strength would continue unchanged. Fort
5 Meade would remain relatively quiet with no significant sources of noise, and vehicular traffic
6 on highways adjacent to the installation would remain the primary source of ambient noise. It is
7 anticipated that the No Action Alternative would have no noise impacts.

8 **Alternative 1—Implement Force Reductions**

9 Overall, force reductions under Alternative 1 are not expected to have unavoidable, long-term
10 impacts to sensitive noise receptors. No additional aircraft activity, vehicular traffic or
11 construction would be likely to occur with a reduction in forces, and no change in the character
12 of operations at the installation are anticipated. Force reductions implemented under Alternative
13 1 would have a negligible likelihood of driving any changes in noise levels either on or off the
14 installation; therefore, Alternative 1 would have no noise impacts.

15 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
16 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
17 Fort Meade, the Army would ensure that adequate staffing remains so that the installation would
18 comply with all mandatory environmental regulations.

19 **4.18.7 Soils**

20 **4.18.7.1 Affected Environment**

21 Fort Meade lies within the Atlantic Coastal Plain Physiographic Province, characterized by low
22 hills, shallow valleys, and flat plains. The Atlantic Coastal Plain Province is underlain by
23 unconsolidated sediments such as clay, silt, sand, and gravel on top of a harder crystalline
24 substrate. Areas of the central portion of Fort Meade are within the 100 year floodplains of
25 Midway Branch and Franklin Branch; a small area of the western portion of the installation is
26 within the 100 year floodplain of the Lower Patuxent River. However, the majority of the
27 installation is not within a 100 year floodplain (FEMA, 2012).

28 The predominant upland soils on Fort Meade are from the Christiana, Downer, Evesboro, Fort
29 Mott, Hammonton, Patapsco, and Russet soil series and are characterized as very deep, flat to
30 gently rolling, and moderately well drained to well drained. These soils are derived primarily
31 from fluvio-marine and wind-blown deposits of varying textures. Floodplain and wetland soils on
32 Fort Meade are characterized as very deep, flat, and poorly drained. These soils are derived
33 primarily from alluvium and fluvio-marine sediment (NRCS, 2013).

1 The dominant soil map units on Fort Meade are moderately to highly erodible due mostly to their
2 being comprised primarily of silt. Silty soils are easily detached and produce the greatest rates of
3 runoff if they are left bare or exposed to wind and water. Thus, the dominant soils on Fort
4 Meade, if not adequately protected by vegetation cover, would be easily eroded (NRCS, 2013).
5 However, at Fort Meade, activities that could disturb soils are managed in accordance with the
6 provisions of Code of Maryland Regulations which requires approved sediment and erosion
7 plans for projects that disturb more than 5,000 square feet of land area and disturb more than 100
8 cubic yards of earth.

9 **4.18.7.2 Environmental Effects**

10 **No Action Alternative**

11 Negligible, adverse impacts to soils are anticipated under the No Action Alternative. Areas of
12 soil erosion would continue to erode; likewise any ongoing or future scheduled construction
13 projects would likely contribute to negligible impacts to soil from erosion. Fort Meade would
14 continue to adhere to all state requirements and comply with BMPs described in the INRMP
15 (U.S. Army, 2007).

16 **Alternative 1—Implement Force Reductions**

17 Negligible impacts to soils are anticipated under Alternative 1. There are no active munition
18 ranges on the installation; however, there is a light maneuver/training area and a
19 confidence/obstacle course. A force reduction may lead to fewer impacts from these types of
20 activities; however, soils on the installation would still be impacted. A force reduction may lead
21 to fewer future construction projects, which could potentially reduce impacts to soil
22 from erosion.

23 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
24 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
25 potential impacts from these activities on soils are not analyzed.

26 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
27 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
28 Meade, the Army would ensure that adequate staffing remains so that the installation would
29 comply with all mandatory regulations.

1 **4.18.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 2 **Species)**

3 **4.18.8.1 Affected Environment**

4 **Vegetation**

5 Vegetative cover on Fort Meade consists of a mixture of individual mature trees, shrubbery and
6 other landscaping plants, and mowed lawns. Fort Meade has an established Forest Conservation
7 Act and Tree Management Policy to maintain a campus-like environment and preserve forested
8 areas to the maximum extent practical in accordance with the Maryland Forest Conservation Act,
9 while continuing to sustain and support current and future missions. Fort Meade complies with
10 the Maryland Forest Conservation Act to the maximum extent practicable and manages its Forest
11 Conservation Program in agreement with the Maryland Department of Natural Resources
12 (DNR). The installation supports Army, federal, state, and local laws, regulations, policies, and
13 initiatives to the fullest extent possible (USACE, 2012).

14 **Wildlife**

15 Wildlife species found on Fort Meade are typical of those found in urban-suburban areas. White-
16 tailed deer and groundhogs occur on the installation. Other mammals include gray squirrel,
17 raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), eastern chipmunk (*Tamias striatus*),
18 field mouse and vole (*Microtus* spp.), mole (*Scalopus aquaticus*), and red fox (USACE, 2012).
19 Birds common to the installation are limited to those species that have adapted to an urban-
20 suburban habitat, such as American robin (*Turdus migratorius*), catbird (*Dumetella*
21 *carolinensis*), mockingbird (*Mimus polyglottos*), Carolina wren (*Thryothorus ludovicianus*),
22 downy woodpecker (*Picoides pubescens*), European starling (*Sturnus vulgaris*), house sparrow
23 (*Passer domesticus*), and song sparrow (*Melospiza melodia*) (USACE, 2012).

24 **Threatened and Endangered Species**

25 No federally listed or proposed endangered or threatened species are known to occur on Fort
26 Meade. Rare, threatened, and endangered species survey conducted in 2001 (Eco-Science
27 Professionals, 2001, as cited by Fort Meade, 2012) as well as a 2009 flora and fauna survey
28 (USACE, 2009, as cited by Fort Meade, 2012) did not identify federally listed endangered or
29 threatened species on Fort Meade.

30 State-listed species are not protected under the ESA; however, whenever feasible, the installation
31 cooperates with state authorities in an effort to identify and conserve state-listed species
32 (AAFES, 2006, as cited by Fort Meade, 2006). A 2002 survey identified the state rare mud
33 salamander (*Pseudotriton montanus*) located along the western boundary of the installation
34 (Versar, Inc., 2005, as cited by Fort Meade, 2006). The Little Patuxent River, adjacent to the
35 WWTP, supports one of only two populations of the state-threatened glassy darter (*Etheostoma*

1 *vitreum*) in Maryland. The glassy darter is a member of the Perch family named for its
2 translucent body.

3 Fort Meade also is home to the following Maryland species of concern:

- 4 • Downy bushclover (*Lespedeza stuevei*)—Maryland watchlist
- 5 • Pubescent sedge (*Carex hirtifolia*)—Maryland watchlist (Berman Tract)
- 6 • Purple chokeberry (*Aronia prunifloia*)—Maryland watchlist
- 7 • Roughish panicgrass (*Panicum leucothrix*)—Maryland status uncertain

8 Fort Meade voluntarily maintains four Habitat Protection Areas on the installation. Habitat
9 Protection Areas are self-designated sensitive areas; one such area is located close to the WWTP.
10 Fort Meade coordinates with Maryland DNR and tries to avoid affecting these areas to the
11 maximum extent practical.

12 **4.18.8.2 Environmental Effects**

13 **No Action Alternative**

14 Implementation of the No Action Alternative would result in negligible impacts to biological
15 resources and the affected environment would remain in its current state.

16 **Alternative 1—Implement Force Reductions**

17 Fort Meade anticipates that implementation of Alternative 1 could result in beneficial impacts to
18 biological resources and habitat due to force reductions if demolished buildings were returned to
19 natural areas. However, growth pressures from the newly created Army Cyber Command within
20 all the services could result in either expansion into these vacated building or new structures
21 being built on the same site with an increased adverse impact on biological resources. Impacts to
22 threatened and endangered species are expected to be negligible because no federally listed
23 endangered or threatened species are known to occur on Fort Meade. Additionally, impacts to
24 state-listed species of concern are likely to be negligible because designated Habitat Protection
25 Areas would continue to be maintained under a BMP.

26 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
27 natural resources regulations. Even if the full end-strength reductions were to be realized at Fort
28 Meade, the Army would ensure that adequate staffing remains so that the installation would
29 comply with all mandatory environmental regulations.

1 **4.18.9 Wetlands**

2 **4.18.9.1 Affected Environment**

3 Fort Meade contains approximately 271 acres of freshwater wetlands, associated with the
4 watersheds of the Little Patuxent River in the western portion of the installation, Midway Branch
5 in the center of the installation, and Franklin Branch in the eastern portion of the installation
6 (USACE, 2012). The majority of the wetlands on the installation occur in the southwestern
7 portion, adjacent to the Little Patuxent River. Several forested wetlands located within the
8 Midway Branch watershed may be eligible for special concern status under the Maryland
9 Department of the Environment because they contain ecologically important habitat for special
10 species (USACE, 2007); however, no Maryland Department of the Environment determination
11 has been made to date (Maryland Department of the Environment, 1998).

12 **4.18.9.2 Environmental Effects**

13 **No Action Alternative**

14 Negligible, adverse impacts to wetlands on Fort Meade are anticipated under the No Action
15 Alternative. Impacts to wetlands from any current projects under construction would have
16 already been assessed and, if required, been properly permitted and mitigated. Current
17 management of wetlands under the INRMP, which includes avoidance and mitigation, would
18 continue under the No Action Alternative (U.S. Army, 2007). Current management of
19 recreational facilities would also continue under the No Action Alternative which could
20 contribute to pollutants entering adjacent wetlands and ponds.

21 **Alternative 1—Implement Force Reductions**

22 Negligible impacts to wetlands on Fort Meade as a result of the implementation of Alternative 1
23 are anticipated. There are no active munitions ranges on the installation; however, there is a light
24 maneuver/training area and a confidence/obstacle course. A force reduction would not lead to
25 fewer impacts from these types of activities, because they do not occur in wetlands. Thus, it is
26 unlikely a force reduction would change the impact threshold from the No Action Alternative.

27 Adverse impacts to wetlands could conceivably occur if force reductions decreased
28 environmental staffing levels to a point where environmental compliance could not be properly
29 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
30 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
31 realized at Fort Meade, the Army would ensure that adequate staffing remains so that mandated
32 environmental requirements would continue to be met.

1 **4.18.10 Water Resources**

2 **4.18.10.1 Affected Environment**

3 **Surface Water/Watersheds**

4 Fort Meade is located within the greater Chesapeake Bay watershed. The Chesapeake Bay is
5 North America's largest and most biologically diverse estuary, home to more than 3,600 species
6 of plants, fish, and animals (Chesapeake Bay Program, 2000). To protect and restore this
7 valuable ecosystem, Maryland joined a consortium of state and federal agencies to establish the
8 Chesapeake Bay Program partnership. The Army's conservation mission supports the
9 Chesapeake Bay Programs, and Fort Meade is implementing BMPs that support the guidelines
10 established by the partnership.

11 The installation lies almost entirely within the Little Patuxent River watershed (MD watershed
12 code number 02131105), of the Patuxent River Basin. A very small area in the northeast corner
13 of the installation drains to the Severn River. The Patuxent River drains an area of 932 square
14 miles before emptying into the Chesapeake Bay on the western shore, and is designated a "scenic
15 river" under the Maryland Scenic and Wild Rivers Act of 1968. The Act mandates the
16 preservation and protection of natural values associated with each designated river, and State and
17 local governments are required to take whatever actions necessary to protect and enhance the
18 qualities of the designated rivers. The Little Patuxent River is currently listed on Maryland's list
19 of impaired waters under Section 303(d) of the Clean Water Act. Impairments include sediments,
20 metals (cadmium), and biological.

21 Fort Meade contains approximately 7.2 miles of perennial streams as well as other intermittent
22 and ephemeral channels. The most significant water resources on Fort Meade are Franklin
23 Branch and Midway Branch as well as Burba Lake. The majority of the installation is drained by
24 Midway Branch and its primary tributary, the Franklin Branch. Both are tributaries to the Little
25 Patuxent River. Midway Branch flows for the entire length of Fort Meade from the northern end
26 to the southern end, then confluences with the Little Patuxent River off-site. Franklin Branch
27 also flows through the installation from the northern end through Burba Lake, an 8.2 acre man-
28 made lake, and confluences with Midway Branch. There are also several stormwater
29 management features, particularly ponds, spread across Fort Meade.

30 Riparian buffers were incorporated into the Fort Meade Comprehensive Expansion Management
31 Plan and subsequent BRAC projects to minimize impacts and degradation to waterbodies leading
32 to the Chesapeake Bay. Fort Meade maintains a voluntary 100-foot riparian forest buffers along
33 streams and abutting wetlands to the maximum extent practical.

34 Fort Meade is located within the Maryland Coastal Zone Management Program. This program
35 uses various regulations to protect and conserve coastal and marine resources including uses of
36 terrestrial and aquatic habitat. One of those resources is the Chesapeake Bay.

1 **Groundwater**

2 The aquifers underlying Fort Meade are the Upper Patapsco, Lower Patapsco, and Patuxent
3 aquifers (USACE, 2012). Nearest to the surface is the unconfined Upper Patapsco aquifer
4 occurring under water table conditions (Maryland Department of the Environment, 2012). The
5 Arundel Clay formation overlies the Patuxent aquifer, separating it from the Lower Patapsco
6 aquifer. The Patuxent aquifer is located below the Lower and Upper Patapsco aquifers and is
7 200-400 feet thick (USACE, 2012). Consisting of sand, silt, and clay substrates this aquifer
8 contains large quantities of water (Maryland Department of the Environment, 2012). The
9 installation has wells from 500 to 800 feet deep, drawing water from the Patuxent aquifer (U.S.
10 Army, 2012a). Groundwater sampling within the installation boundaries has found contaminants
11 including VOCs, semi-VOCs, total petroleum hydrocarbons (diesel range and/or gasoline range
12 organics), pesticides, herbicides, and metals (USACE, 2013). At many sites, these contaminants
13 have been detected but the concentrations do not exceed standards or pose a risk to human health
14 or the environment. At those sites where concentrations are elevated, exceed standards, and/or
15 may pose a risk, additional remedial investigations, site assessments, and monitoring are being
16 implemented or are proposed. Cleanup at many of these sites involves active remediation
17 operations, groundwater monitoring, or preventative measures. Any groundwater withdrawn
18 from the Patuxent aquifer for public drinking water follows the Safe Drinking Water Act and
19 Code of Maryland Regulations and is monitored (USACE, 2012).

20 **Water Supply**

21 The water supply system is privatized and owned and operated by American Water USACE,
22 2012). Six wells, drawing groundwater from the Patuxent aquifer, provide water for the
23 installation (USASMDC, 2011). Groundwater is transferred to American Water's treatment plant
24 prior to distribution. The maximum allowed draw capacity permitted by the Maryland
25 Department of the Environment is 3.3 mgd, or approximately 1,200 million gallons per year
26 (Permit No. AA1969G021 (07), effective 1 June 2012, expires 1 June 2024)
27 (Fort Meade, 2014b).

28 Potable water storage is provided by three ASTs and seven active water storage tanks
29 (USASMDC, 2011). The ASTs can hold a total storage volume of 2.3 million gallons and the
30 active storage tanks can hold 200,000 to 600,000 gallons (U.S. Army, 2011, as cited by
31 USACE, 2012).

32 **Wastewater**

33 American Water, a utility company, is the owner and operator of the Fort Meade wastewater
34 treatment system. The WWTP, which discharges to the Little Patuxent River under an NPDES
35 WWTP permit, has a design flow of 12.3 mgd. The average flow to the plant is currently
36 approximately 2.5 mgd (Fort Meade, 2014b). During wet weather, maximum instantaneous
37 flows can reach 12 mgd although the 10-year average is 2.3 mgd (USACE, 2012). In addition to

1 the wastewater treatment permit, the treatment plant also has NPDES permits for stormwater
2 discharge from industrial facilities and from maintenance and repair actions.

3 **Stormwater**

4 In addition to the natural drainage areas supported by the three main surface waters on the
5 installation, the Fort Meade stormwater system contains the physical infrastructure of storm
6 drainpipes, drainage structures, swales, ditches, and retention ponds (USACE, 2012). Natural
7 and constructed drainage systems eventually drain south of the installation to the Little Patuxent
8 River, a tributary of the Chesapeake Bay (U.S. Army, 2011, as cited by USACE, 2012).

9 The Fort Meade SWPPP describes construction and industrial BMPs to prevent and reduce
10 pollution in installation waterways due sediment and other contaminants (U.S. Army, 2011 as
11 cited by USACE, 2012). Several stormwater management techniques employed include low
12 impact development, rain gardens, debris cleanup, replacement of concrete drains, and riparian
13 buffers (U.S. Army, 2012a). All new construction projects greater than 5,000 square feet are
14 required to meet the stormwater requirements of the Energy Independence and Security Act of
15 2008 as well as the Maryland Department of the Environment environmental site design
16 requirements for stormwater management.

17 **Floodplains**

18 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
19 and any adverse impacts from the use or modification of floodplains when there is a feasible
20 alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the
21 risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to
22 restore and preserve the natural and beneficial values served by floodplains in carrying out its
23 responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance
24 of being equaled or exceeded in any year. The 500-year floodplain indicates areas where the
25 flood has a 0.2 percent chance of being equaled or exceeded in any year. Specific areas of
26 flooding include areas adjacent to the Franklin and Midway Branches (USACE, 2012).

27 **4.18.10.2 Environmental Effects**

28 **No Action Alternative**

29 Negligible impacts to water resources are anticipated from the No Action Alternative. Conditions
30 of water resources under the No Action Alternative would not change. Fort Meade would
31 continue to strive to meet federal and state water quality criteria, drinking water standards, and
32 floodplain management requirements. The installation would continue to comply with all federal
33 and state regulations and guidelines concerning wastewater, stormwater management, and
34 floodplains. Current water resources management and compliance activities would continue
35 to occur.

1 **Alternative 1—Implement Force Reductions**

2 Negligible impacts to water resources are anticipated from Alternative 1. Adverse water
3 resources impacts could conceivably occur if personnel cuts prevented environmental
4 compliance from being implemented. The Army is committed to ensuring that personnel cuts
5 will not result in non-compliance with water quality regulations. Even if the full end-strength
6 reductions were to be realized at Fort Meade, the Army would ensure that adequate staffing
7 remains so that mandated environmental requirements would continue to be met and
8 implemented. A decrease in personnel would reduce the amount of treated wastewater
9 discharged to the receiving surface water and the demand for potable water and treatment. These
10 would likely have negligible to beneficial impacts. Force reduction at Fort Meade is not
11 anticipated to cause violations of federal and state water quality regulations and
12 discharge permits.

13 **4.18.11 Facilities**

14 **4.18.11.1 Affected Environment**

15 Fort Meade is the Nation's center for information, intelligence, and cyber operations. Fort
16 Meade's facility infrastructure consists of 1,673 buildings providing 11,055, 345 square feet of
17 building space. Fort Meade's workforce is comprised of 13,594 military and 35,539 civilian for a
18 total workforce of 49,258 military and civilian employees (Fort Meade, 2014b).

19 Support facilities at Fort Meade include troop barracks, Family housing, temporary lodging,
20 apartments, schools, child and youth services, a conference center, a wellness center, chapels, a
21 fitness center, afield house, and other recreational facilities (U.S. Army, 2012b).

22 BRAC 2005 actions had significant impacts to Fort Meade's facilities. BRAC 2005 actions
23 included the construction of the following: Defense Information Systems Agency headquarters (a
24 total of 1,000,000 square feet of office space in five buildings); new headquarters for the Defense
25 Media Activity (186,000 square feet in a multi-story building); a new headquarters for the
26 Colocation of Defense/Military Adjudication Activities (152,000 square feet); and associated
27 support infrastructure (USACE, 2008).

28 **4.18.11.2 Environmental Effects**

29 **No Action Alternative**

30 No impacts are anticipated under the No Action Alternative. Fort Meade would continue to use
31 its existing facilities to support its tenants and missions.

32 **Alternative 1—Implement Force Reductions**

33 Minor impacts to facilities are anticipated as a result of implementation of force reductions under
34 Alternative 1. Force reductions associated with Alternative 1 would reduce requirements for

1 facilities and affect space utilization across the installation. Construction or major expansion
 2 projects that had been programmed in the future may not occur or could be downscoped.
 3 Occupants of older, underutilized, or excess facilities may be moved to newer facilities; in some
 4 cases this could require modification of existing facilities. As discussed in Chapter 1, the
 5 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
 6 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
 7 impacts from these activities are not analyzed.

8 **4.18.12 Socioeconomics**

9 **4.18.12.1 Affected Environment**

10 The ROI consists of Fort Meade and Anne Arundel, Baltimore, Howard, and Prince George’s
 11 counties in Maryland. The ROI includes counties that are generally considered the geographic
 12 extent to which the majority of the installation’s Soldiers, Army civilians, and contractor
 13 personnel and their Families reside. This section provides a summary of demographic and
 14 economic characteristics within the ROI.

15 **Population and Demographics**

16 Using 2013 as a baseline, Fort Meade has a total working population of 51,628 consisting of
 17 active component Soldiers and Army civilians, students and trainees, other military services,
 18 civilians and contractors. Of the total working population, 6,638 were permanent party Soldiers
 19 and Army civilians. The population that lives on Fort Meade consists of 2,100 Soldiers and an
 20 estimated 3,188 Family members, for a total on-installation Army resident population of 5,288
 21 (Stafford, 2014). The portion of Soldiers, Army civilians, and Family members living off the
 22 installation is estimated to be 11,427. Additionally, there are 771 total students and trainees on
 23 the installation at any given time, which includes PCS military students, TDY students and
 24 trainees, PCS civilian student, and TDY civilian students.

25 In 2012, the ROI population was over 2.5 million. Compared to 2010, the 2012 population
 26 increased in all counties in the ROI with the largest increase in Howard County (Table 4.18-3).
 27 The racial and ethnic composition of the ROI is presented in Table 4.18-4
 28 (U.S. Census Bureau, 2012a).

29 **Table 4.18-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Anne Arundel County, Maryland	550,175	+2.3
Baltimore County, Maryland	817,682	+1.6
Howard County, Maryland	299,356	+4.3
Prince George’s County, Maryland	881,419	+2.1

1 **Table 4.18-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Maryland	60.8	30.0	0.5	6.0	2.5	8.7	53.9
Anne Arundel County, Maryland	76.9	16.1	0.4	3.7	2.8	6.6	71.5
Baltimore County, Maryland	64.8	27.0	0.4	5.4	2.2	4.6	61.4
Howard County, Maryland	62.3	18.1	0.4	15.7	3.4	6.2	57.6
Prince George's County, Maryland	26.5	65.3	1.0	4.4	2.6	15.7	14.8

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 In 2012, the total employed labor force in the ROI was approximately 1.3 million (U.S. Census
 5 Bureau, 2012b). Between 2010 and 2012, the total employed labor force (including civilians and
 6 military) increased in the state of Maryland and all of the ROI counties, with the largest increase
 7 in Howard County (Table 4.18-5). Employment, median home value, and household income, and
 8 population below the poverty level are presented in Table 4.18-5.

1 **Table 4.18-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Maryland	2,952,570	+11.8	304,900	72,999	9.4
Anne Arundel County, Maryland	285,024	+8.9	349,800	86,987	5.9
Baltimore County, Maryland	408,698	+7.8	\$263,900	\$66,068	5.7
Howard County, Maryland	156,885	+14.9	435,300	107,821	4.4
Prince George's County, Maryland	460,186	+13.3	289,400	73,568	8.7

2 Source: U.S. Census Bureau (2012b, 2000)

3 Information regarding the workforce by industry for each county within the ROI was obtained
 4 from the U.S. Census Bureau. Information presented below is for the employed labor force.

5 ***Anne Arundel County, Maryland***

6 According to the U.S. Census Bureau, the educational services, and health care, and social
 7 assistance sector accounts for the greatest share of total workforce in Anne Arundel County (19
 8 percent). The professional, scientific, and management, and administrative, and waste
 9 management services sector is the second largest employer (14 percent), followed by public
 10 administration (13 percent). The Armed Forces account for 2 percent of the county's workforce.
 11 The remaining 10 industries employ 54 percent of the workforce.

12 Major employers in Anne Arundel County include Baltimore Washington Medical Center, Booz
 13 Allen & Hamilton, Maryland Live! Casino, and Northrop Grumman Corporation (Maryland
 14 DLLR, 2013).

15 ***Baltimore County, Maryland***

16 According to the U.S. Census Bureau, the educational services, and health care and social
 17 assistance sector accounts for the greatest share of total workforce in Baltimore County (26
 18 percent). Professional, scientific, and management, and administrative and waste management
 19 services is the second largest employment sector (12 percent), followed by retail trade (11
 20 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
 21 remaining 10 industries employ 51 percent of the county's workforce
 22 (U.S. Census Bureau, 2010).

1 The top three principal employers in Baltimore County include Social Security
2 Administration/CMS, Baltimore County Public Schools, and Baltimore County Government
3 (Baltimore County Department of Economic Development, 2010).

4 **Howard County, Maryland**

5 According to the U.S. Census, the educational services, and health care and social assistance
6 sector accounts for the greatest share of total workforce in Howard County (22 percent).
7 Professional, scientific, management, administrative, and waste management services sector is
8 the second largest employment sector (20 percent), followed by public administration (11
9 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
10 remaining 10 industries employ 47 percent of the workforce.

11 Major employers in Howard County include Cellco Partnership, Giant, Howard County General
12 Hospital, and Maxim Healthcare Service (Maryland DLLR, 2013).

13 **Prince George's County, Maryland**

14 According to the U.S. Census Bureau, the educational services, and health care and social
15 assistance sector accounts for the greatest share of total workforce in Prince George's County (21
16 percent). Public administration is the second largest employment sector (16 percent), followed by
17 professional, scientific, management, administrative, and waste management services sector (15
18 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
19 remaining 10 industries employ 48 percent of the workforce.

20 Major employers in Prince George's County include Dimensions Health Corporation, Doctors
21 Hospital, Giant, and Marriott Hotel Services (Maryland DLLR, 2013).

22 **Housing**

23 There are currently 2,627 permanent military Family homes provided by the Army's privatized
24 housing partner, Corvias Military Living. Active component military, including Army, Navy, Air
25 Force, Marines and Coast Guard, and their Family members currently occupy 2,277 homes and
26 350 homes are occupied by military retirees, federal civilian employees and their Family
27 members. A total of 8,500 military, retirees, civilians and their Family members live in
28 installation Family housing. An additional 906 active component military from all services live
29 in the permanent party barracks and 362 active component military from all services live in
30 training barracks. Active component military eligible to stay in barracks but for which no space
31 is available are issued Certificates of Non-Availability to obtain housing off the installation.
32 Currently, a privatized apartment project within the installation fence line, known as Reece
33 Crossings, is under construction to provide 816 beds for single active component military from
34 E-1 to E-5.

1 Fort Meade currently provides on-installation transient lodging services through the use of 196
2 lodging units within seven buildings. Fort Meade has lodging facilities primarily for official
3 TDY or PCS. When Soldiers on TDY, PCS, or unofficial demand cannot be accommodated on
4 the installation, they receive Certificates of Non-Availability to stay at an off-the-installation
5 lodging facility. During the 4-year period from FY 2008 through FY 2011, Fort Meade Army
6 Lodging had an occupancy rate of 81 percent (USACE, 2012). A Candlewood Suites hotel is
7 currently under construction through the Privatized Army Lodging Program to replace out of
8 date lodging facilities.

9 **Schools**

10 All schools on Fort Meade are part of Anne Arundel County Public Schools. Fort Meade has
11 seven schools on the installation: West Meade Early Education Center (pre-kindergarten to
12 kindergarten); Pershing Hill Elementary (grades 1–5); Manor View Elementary (grades 1–5);
13 Meade Heights Elementary (grades 1–5); Meade Middle School (grades 6–8); MacArthur
14 Middle School (grades 6–8); and Meade High School (grades 9–12). Student’s home address
15 determines the school they attend. Unless the student is homeschooled or has been accepted to
16 attend a different school (i.e., magnet program or charter school), all kindergarten through grade
17 12 students who live on the installation attend one of the aforementioned schools on
18 the installation.

19 Many military Families who live off the installation commute from various areas and generally
20 live in four major school districts. Many military members travel to Fort Meade from the
21 following surrounding counties: Prince George’s County, Montgomery County, Howard County,
22 Baltimore County, and Anne Arundel County (Fort Meade’s location).

23 Due to the population growth at Fort Meade, it is expected that Meade Middle and Meade High
24 School will be affected by the newly-anticipated housing developments around Fort Meade.
25 Meade High School is currently using portable trailers that house students for classes due to the
26 lack of space in the building. The school has recently been approved to make interior changes
27 and improvements. Additionally, the construction of an addition to the Meade High School is
28 planned for the summer of 2014.

29 **Public Health and Safety**

30 ***Police Services***

31 The Fort Meade DES provides police protection for the installation. The Police Services Division
32 provides physical security, law enforcement, crime prevention and investigation, traffic
33 enforcement and control, apprehension of military deserters, and animal control
34 (Fort Meade, 2013b).

Fire and Emergency Services

The Fort Meade Fire and Emergency Services Department provides fire suppression, rescue, fire prevention, emergency medical response, hazardous materials response, and aircraft crash response (Fort Meade, 2013b).

Medical Facilities

Healthcare on the installation is provided at the Kimbrough Ambulatory Care Clinic. Kimbrough is the headquarters of the U.S. Army Medical Department Activity. Kimbrough provides primary care, selected specialty care, and same-day surgery for TRICARE Prime patients, but it is not a hospital and does not provide emergency services. The Veterans Administration operates a newly constructed Health Clinic adjacent to Kimbrough Ambulatory Care Clinic. In addition, a renovation of an existing building is now home to the first Army Wellness Center. Health care facilities off the installation include the Anne Arundel Medical Center, Howard County General Hospital, Baltimore Washington Medical Center, and Johns Hopkins Hospital. Fort Meade has two dental clinics (AMEDD, 2010; Fort Meade Alliance, 2010; MHA, 2011).

Family Support Services

The Fort Meade ACS mission is to provide comprehensive, coordinated and responsive services that support the readiness of Soldiers and civilian employees (both appropriated and non-appropriated funded) and their Families. There are a wide variety of programs and services to assist Soldiers and their Families, including Army Emergency Relief Program, Army Family Action Plan, Army Family Team Building, Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Financial Readiness, Relocation Assistance, Sexual Assault Prevention and Response Program, Family Advocacy Program, New Parent Support, Soldier and Family Assistance Center, and Survivor Outreach Services.

The Fort Meade CYSS provides recreational and learning programs for children and teens at Fort Meade. Fort Meade CYSS encompasses three child development centers, a teen center, youth center, youth sports, SKIES program, and school liaison services.

While Fort Meade's ACS programs and CYSS programs are Army programs, services are also provided to all other branches. The Fleet and Family Support Services and Airman and Family Readiness Centers are co-located with the ACS program. Only those programs which are geared directly toward one particular service, such as Family Readiness Programs, Mobilization and Demobilization services, are restricted to Soldiers and their Families. All other services and youth programs are provided across branches.

Recreation Facilities

Fort Meade Family and MWR provides its military community, Families, and civilians various recreational opportunities on the installation, including a fitness center and indoor pool, field house, outdoor recreational opportunities and rentals, Burba Park, dog park, RV park and storage

1 lot, automobile craft center, library, leisure travel services, special events and an arts and
2 crafts center.

3 **4.18.12.2 Environmental Effects**

4 **No Action Alternative**

5 Fort Meade's operations would continue to benefit regional economic activity. No additional
6 impacts to population, housing, public and social services, public schools, public safety, or
7 recreational activities are anticipated.

8 **Alternative 1—Implement Force Reductions**

9 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
10 less than significant impact to socioeconomic resources. The description of impacts to the
11 various components of socioeconomics is presented below.

12 ***Population and Economic Impacts***

13 Alternative 1 would result in the loss of 3,500²⁴ Army positions (2,640 Soldiers and 860 Army
14 civilians), each with an average annual income of \$46,760 and \$64,203, respectively. In addition,
15 this alternative would affect an estimated 5,313 Family members (1,953 spouses and 3,360
16 dependent children). The total population of Army employees and their Families directly
17 affected under Alternative 1 is projected to be 8,813.

18 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
19 forecasted economic impact value falls outside the historical positive or negative ranges. Table
20 4.18-6 shows the deviation from the historical average that would represent a significant change
21 for each parameter. The last row summarizes the deviation from the historical average for the
22 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
23 by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales,
24 income, employment, and population in the ROI under Alternative 1 because the estimated
25 percentage changes are within the historical range.

²⁴ This number was derived by assuming the loss of 70 percent of Fort Meade's Soldiers and 30 percent of the Army civilians.

1 **Table 4.18-6. Economic Impact Forecast System and Rational Threshold Value**
 2 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+4.9	+3.0	+3.8	+1.7
Economic contraction significance value	-6.7	-3.2	-3.2	-0.6
Forecast value	-0.2	-0.2	-0.5	-0.3

3 Table 4.18-7 summarizes the predicted impacts to income, employment, and population of the
 4 reductions against the 2012 demographic and economic data. Whereas the forecast value
 5 provides a percent change from the historical average, the percentages in the following table
 6 show the economic impact as a percent of 2012 demographic and economic data. Although not
 7 in exact agreement with the EIFS forecast values, these figures show the same significance
 8 determinations as the EIFS predictions in the previous table.

9 **Table 4.18-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$247,821,800	-3,946 (Direct)	-8,813
		-1,204 (Induced)	
		-5,150 (Total)	
Total 2012 ROI economic estimates	\$136,382,182,000	1,310,793	1,731,767
Percent reduction of 2012 figures	-0.2	-0.4	-0.5

10 Note: Sales estimates are not consistently available from public sources for all counties in the United
 11 States; therefore, the sales data for counties are not presented in this table. The estimated
 12 reduction in total sales from EIFS is described in the paragraphs below.

13 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 14 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 15 cumulative force reductions. Because of the maximum potential loss of 3,500 Army Soldiers and
 16 civilians under Alternative 1, EIFS estimates an additional 446 direct contract service jobs would
 17 also be lost. An additional 1,204 induced jobs would be lost because of the reduction in demand
 18 for goods and services within the ROI. Total reduction in employment is estimated to be 5,150, a
 19 0.4 percent reduction of the total employed labor force in the ROI of 1,310,793. Income is
 20 estimated to reduce by \$247.8 million, a 0.2 percent decrease in income in 2012.

21 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$390 million.
 22 There would also be a loss in sales tax receipts to local and state governments. The state and
 23 average local sales tax for Maryland is 6 percent (Tax Foundation, 2014). To estimate sales tax
 24 reductions, information was utilized on the proportion of sales that would be subject to sales tax
 25 on average across the country. According to the U.S. Economic Census, an estimated 16 percent

1 of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012). This
2 percentage and applicable tax rate was applied to the estimated decrease in sales of \$389.6
3 million resulting in an estimated sales tax receipts decrease of \$3.7 million under Alternative 1.

4 Of the 1,731,767 people (including those residing on Fort Meade) who live within the ROI,
5 8,813 Army employees and their Family members are predicted to no longer reside in the area
6 under Alternative 1, resulting in a population reduction of 0.5 percent. This number likely
7 overstates potential population impacts because some of the people no longer employed by the
8 Army would continue to live and work within the ROI, finding employment in other
9 industry sectors.

10 **Housing**

11 The population reduction under Alternative 1 would lead to temporary decreased demand for
12 housing and increased housing availability on the installation and in the region, potentially
13 leading to a reduction in median home values. With an expected decrease in population within
14 the ROI of 0.5 percent along with the large and diversified ROI economy, it is likely that housing
15 impacts under Alternative 1 would be minor and adverse.

16 **Schools**

17 Under Alternative 1, the reduction of 3,500 Army personnel would decrease the number of
18 children by 3,360 in the ROI. It is anticipated that school districts that provide education to Army
19 children on the installation would be impacted under this Alternative. Meade Middle School and
20 Meade High school, located on the installation, would be most affected by these decreases in
21 enrollment as these schools provide education for Army children on and off the installation. The
22 remaining five Anne Arundel County schools on the installation and school districts in the ROI
23 that provide education to military children would also have a decreased number of military-
24 dependent students attending their schools. Alternative 1 may have beneficial impacts in some of
25 the school districts that are experiencing considerable growth in enrollment, which includes the
26 schools on the installation, where student enrollment is close to or over the schools' capacity.
27 Within these schools, Alternative 1 could lead to reduced school crowding, smaller class sizes,
28 and a reduction in student to teacher ratios.

29 The reduction of Soldiers on Fort Meade would result in a loss of Federal Impact Aid dollars in
30 the ROI. The amount of Federal School Impact Aid a district receives is based on the number of
31 students who are considered "federally connected" and attend district schools. Actual projected
32 dollar amounts cannot be determined at this time due to the variability of appropriated dollars
33 from year to year and the uncertainty regarding the actual number of affected school-age
34 children. In 2010, however, Federal Impact Aid accounts for 3.5 percent of revenue sources for
35 Anne Arundel County schools, and the county received \$2.0 million in Federal Impact Aid funds
36 (Anne Arundel County, 2009a).

1 School districts in the ROI would likely need fewer teachers and materials as military-dependent
2 enrollment drops, which would partially offset some of the reduced Federal Impact Aid. Overall,
3 impacts to schools under Alternative 1 would range from beneficial to significant and adverse,
4 depending on the reduction of the number of military-connected students attending schools and
5 the current enrollment relative to the school's capacity.

6 **Public Services**

7 Law enforcement, medical care providers, and fire and emergency service providers on the
8 installation may experience a decrease in demand if Soldiers and Army civilians, and their
9 Family members, affected by Alternative 1, move to areas outside the ROI. Adverse impacts to
10 public services could conceivably occur if personnel cuts were to substantially affect hospitals,
11 military police, and fire and rescue crews on the installation. These scenarios are not reasonably
12 foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or
13 civilian personnel, the Army is committed to meeting health and safety requirements. Overall,
14 there would be minor, adverse impacts to public health and safety as a result of Alternative 1.
15 The impacts to public services are not expected to be significant because the existing service
16 level for the installation and the ROI would still be available.

17 **Family Support Services and Recreation Facilities**

18 Family Support Services and recreation facilities would experience reduced demand and use and
19 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
20 committed to meeting the needs of the remaining population on the installation. While there may
21 be a decreased demand from Army customers, demands of all other services will remain constant
22 and potentially increase. Overall, there will be minor impacts to Family Support Services and
23 recreation facilities because these installation-supported services are operated primarily by non-
24 appropriated-funded civilian employees who are not part of the Alternative 1 reductions.

25 **Environmental Justice and Protection of Children**

26 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
27 *Low-Income Populations*, provides: "each Federal agency shall make achieving environmental
28 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
29 and adverse human health or environmental effects of its programs, policies, and activities on
30 minority and low-income populations" (EPA, 1994). The racial and ethnic composition of the
31 ROI differs from that of the state as a whole, with notably higher proportions of African
32 American and poverty populations in Prince George's County when compared to the state as a
33 whole. Because minority populations are more heavily concentrated in Prince George's County,
34 Alternative 1 has the potential to result in adverse impacts to minority-owned and/or minority-
35 staffed businesses if Soldiers and Army civilians directly affected under Alternative 1 move to
36 areas outside the ROI. Overall, although adverse impacts to environmental justice populations
37 might occur under Alternative 1, they would not disproportionately affect these populations.

1 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
2 federal agencies are required to identify and assess environmental health and safety risks that
3 may disproportionately affect children and to ensure that the activities they undertake do not
4 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
5 were to be realized, the Army is committed to implementing required environmental compliance
6 and meeting the health and safety needs of the people associated with the installation, including
7 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
8 environmental health and safety risks to children within the ROI. Additionally, this analysis
9 evaluates the effects associated with workforce reductions only, and any subsequent actions on
10 the installation that may require ground-disturbing activities that have the potential to result in
11 environmental health and safety risks to children, such as demolishing vacant buildings, is
12 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
13 as appropriate.

14 **4.18.13 Energy Demand and Generation**

15 **4.18.13.1 Affected Environment**

16 Fort Meade's energy needs are currently met by a combination of electric power and natural gas.
17 During the past decade, Congress has enacted major energy bills, and the President has issued
18 Executive Orders that direct federal agencies to address energy efficiency and environmental
19 sustainability. The federal requirements for energy conservation that are most relevant to Fort
20 Meade include the Energy Policy Act of 2005; E.O. 13423, *Strengthening Federal*
21 *Environmental, Energy, and Transportation Management*, issued January 2007; Energy
22 Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental,*
23 *Energy, and Economic Performance*, issued October 2009. Fort Meade is striving to comply with
24 these requirements.

25 **Electricity**

26 Baltimore Gas and Electric supplies electricity to Fort Meade. A 115-kV transmission line brings
27 electricity to master substations on the installation. The existing primary source for about 80
28 percent of installation power is a 110-kV feeder line from Baltimore Gas and Electric's Waugh
29 Chapel Power Station. In 2004, Fort Meade partnered with Baltimore Gas and Electric to
30 privatize the electric utility. Since then, Baltimore Gas and Electric has upgraded 75 percent of
31 the installation's gas and electrical systems (Fort Meade, 2011).

32 **Natural Gas**

33 Baltimore Gas and Electric supplies natural gas to Fort Meade. The natural gas distribution
34 system at Fort Meade is extensive and runs throughout the installation. New, gas-fired boilers
35 installed throughout the installation have replaced old, centralized oil-fired boilers
36 (USASMDC, 2011).

1 **4.18.13.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts are anticipated on energy demand. The continued use of outdated,
4 energy-inefficient facilities could hinder Fort Meade's requirement to reduce energy
5 consumption. Some older facilities may require renovations to improve energy efficiency to
6 achieve federal mandate requirements.

7 **Alternative 1—Implement Force Reductions**

8 Minor, beneficial impacts to energy demand are anticipated because force reductions would
9 reduce the installation's overall demand for energy. The installation would also be better
10 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
11 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
12 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
13 these activities on energy demand are not analyzed.

14 **4.18.14 Land Use Conflicts and Compatibility**

15 **4.18.14.1 Affected Environment**

16 **Regional Setting**

17 Land use at Fort Meade is made up of general designated land use categories including
18 Operations, Tenant Agency, Housing, Community, School, and Open Space (USACE, 2007).
19 The northern half of Fort Meade is predominantly military Family housing with schools. The
20 southern half consists primarily of administrative, unaccompanied housing, and instructional
21 operations. The retail center is near the center of the installation between Reece and Mapes
22 roads. NSA has expanded into the center of the installation, currently constructing its "East
23 Campus," and occupies approximately 862 acres. Existing development at Fort Meade includes
24 administrative buildings and industrial areas in the form of motor pools and warehouses as well
25 as a significant number of Family housing units that are currently being upgraded under the RCI.
26 The installation also has recreational areas and a shopping complex with a main post exchange,
27 commissary, bank, gas station, post office, and bowling alley (NSA, 2010).

28 **Surrounding Land Uses**

29 The overall pattern of land use surrounding Fort Meade is best characterized as a developed,
30 suburban landscape that supports a growing population. Towns near Fort Meade include
31 Odenton to the east, Jessup to the north, and Laurel to the west (USACE, 2007). Land planning
32 and development in the areas adjacent to the installation is guided by the Anne Arundel County
33 2009 General Development Plan. The plan establishes a vision for the future based on four core
34 principles: balanced growth and sustainability, community preservation and enhancement,
35 environmental stewardship, and quality public services. It includes a Land Use Plan to guide

1 future development patterns, and a Transportation Plan with recommendations for improving the
2 County's road network, public transit options, and travel demand management (Anne Arundel
3 County, 2009b). The Anne Arundel County Zoning Ordinance establishes a set of enforceable
4 regulations established to promote compatible patterns of land use within the County. Zoning
5 districts that have been created based on the desired predominant use of land govern the use and
6 development of individual property within Anne Arundel County (Anne Arundel County, 2014).
7 Areas to the north and east of Fort Meade are zoned for a range of residential uses with higher
8 density residential development to the east. Areas to the northwest are zoned for residential use
9 with some industrial zoning areas as well. Zoning regulations to the west of Fort Meade establish
10 a wide variety of residential, commercial, and industrial uses with large amounts of open space
11 along the Little Patuxent River. Land use in these commercial and industrial areas is mostly
12 government in nature. Areas to the south of Fort Meade are zoned for recreation and parks,
13 including the 12,750-acre Patuxent Research Refuge (NSA, 2010).

14 **4.18.14.2 Environmental Effects**

15 **No Action Alternative**

16 Implementation of the No Action Alternative would include the continuation of existing
17 operations and force strength at Fort Meade. Since Fort Meade serves predominantly
18 intelligence, administrative, and command functions, the installation does not have an airfield,
19 heavy industrial areas, or heavy weapons ranges (USACE, 2007) and existing uses on the
20 installation are compatible with those in surrounding areas. Continued population growth in
21 areas immediately surrounding the installation could generate land development pressures that
22 may represent potential land use incompatibilities in the future. While the 2009 General
23 Development Plan notes that growth in the region outpaced that of the Baltimore region and
24 Maryland as a whole over the preceding 20 years, it forecasts that growth will slow as the county
25 matures and reaches the limits of its development capacity (Anne Arundel County, 2009b).
26 Overall, negligible land use compatibility impacts are anticipated with implementation of the No
27 Action Alternative.

28 **Alternative 1—Implement Force Reductions**

29 Under Alternative 1, the impacts from force reductions on land use compatibility would be
30 similar to those described for the No Action Alternative. No changes to the pattern or character
31 of land use on the installation are anticipated, and there would be no likelihood of land use
32 conflicts with use surrounding the installation. Alternative 1 would therefore have no impacts
33 related to land use conflicts and compatibility.

1 **4.18.15 Hazardous Materials and Hazardous Waste**

2 **4.18.15.1 Affected Environment**

3 **Hazardous Materials**

4 Fort Meade's DPW Environmental Division is responsible for managing hazardous materials and
5 waste. Hazardous materials ranging from small quantities of cleaners and printing supplies to
6 larger quantities of fuels, oils, and chemicals are used in most facilities at Fort Meade. Current
7 policy stipulates that DoD facilities will use materials that are the most environmentally suitable
8 and least damaging as long as the materials meet the criteria and specifications for a given task
9 (USACE, 2007).

10 The installation operates under an SPCC/ISC Plan for all facilities where hazardous materials are
11 stored. The SPCC/ISC Plan delineates measures and practices that require implementation to
12 prevent and/or minimize spills and releases from storage and handling of hazardous materials to
13 protect ground and water surfaces. In accordance with state, federal, and Army regulations, the
14 SPCC/ISC Plan is updated at least every 3 years, or when significant changes in operations occur
15 that could affect the likelihood of a spill. The SPCC/ISC Plan provides emergency response
16 instructions for spills and uncontrolled releases of hazardous materials. Instructions include
17 notification, probable spill routes, control measures, exposure limits, and evacuation guidelines.
18 Material Safety Data Sheets that provide information about health hazards and first-aid
19 procedures are included in the SPCC/ISC Plan (Baltimore Gas & Electric, 2012).

20 Fort Meade also has an installation HWMP. Those who handle or manage hazardous materials or
21 hazardous waste are trained in accordance with federal, state, local, and Army requirements.

22 **Hazardous Waste Treatment, Storage, and Disposal**

23 Fort Meade generates relatively small quantities of a variety of hazardous wastes and is regulated
24 as a RCRA hazardous waste generator. Procedures for handling, storage, transportation, and
25 disposal of hazardous materials and wastes are outlined in the installation's HWMP. The plan
26 also outlines command responsibilities, identification procedures, inspections, personnel training,
27 and spill response procedures.

28 Several activities routinely performed on the installation generate hazardous waste; however,
29 hazardous wastes that are stored for less than 90 days do not require a permit. Typical hazardous
30 wastes that might be generated include waste paint; thinners; antifreeze; various petroleum
31 products, oils, and lubricants; brake fluid; hydraulic fluid; cleaners; degreasers; solvents; fuels
32 (gasoline and diesel); and batteries. Hazardous materials are handled and stored in appropriate
33 cabinets or containers in accordance with applicable regulations and label precautions. All
34 hazardous wastes are disposed of at permitted treatment, storage, and disposal facilities.

1 Hazardous wastes are maintained at satellite accumulation areas on Fort Meade. After these
2 facilities have reached regulated capacities (55-gallon drum for hazardous waste, 1 quart for
3 acutely hazardous waste), the hazardous waste is transported to the Controlled Hazardous
4 Substance Storage Facility (Building 2250). In accordance with EPA and Maryland Department
5 of the Environment regulations, a running inventory of hazardous waste is maintained at the
6 storage facility.

7 Sludge disposed of from the WWTP requires a Sewage Sludge Utilization Permit to be obtained
8 from the Maryland Department of the Environment by the contractor handling the sludge. Non-
9 hazardous solid waste generated on Fort Meade is transported off the installation by a contractor
10 and disposed of at permitted landfills (Baltimore Gas & Electric, 2012).

11 **Hazardous Waste Investigation and Remediation Sites**

12 The Fort Meade IRP is intended to protect human health, safety, and the environment. The IRP is
13 carried out in accordance with all federal, state, and local laws. On July 28, 1998, all of Fort
14 Meade was designated a site on the NPL under CERCLA, based on the evaluation of four
15 locations that have been identified as past storage and disposal sites for hazardous materials and
16 wastes: the Defense Reutilization and Marketing Office, active sanitary landfill, clean fill dump,
17 and laundry facility. In 2009, Fort Meade signed a Federal Facility Agreement with EPA, U.S.
18 Department of the Interior, and U.S. Architect of the Capitol. This document establishes the roles
19 that all signatories play in the restoration of the installation and the formal mechanisms of this
20 process. The IRP's staff works closely with EPA, Maryland Department of the Environment, and
21 local government agencies to ensure that cleanup processes are conducted properly and
22 efficiently. The staff also receives input from community groups and nearby residential areas
23 (USACE, 2013).

24 The installation also has an active Military Munitions Response Program, which includes two
25 Munitions Response Sites.

26 **Other Hazards**

27 Other hazards present at Fort Meade are controlled, managed, and removed through specific
28 programs and plans and include UXO, PCBs, LBP, asbestos-containing materials, radon, mold,
29 and pesticides.

30 **4.18.15.2 Environmental Effects**

31 **No Action Alternative**

32 Minor, adverse impacts are anticipated under the No Action Alternative because there would be
33 continued use and generation of hazardous materials and wastes on Fort Meade. The existing
34 types and quantities of hazardous wastes generated on the installation have been accommodated
35 by the existing hazardous waste management system, and all materials and waste would continue

1 to be handled in accordance with all applicable laws, regulations, and plans minimizing potential
2 impacts.

3 **Alternative 1—Implement Force Reductions**

4 Minor, adverse impacts are anticipated from implementation of Alternative 1. Remediation
5 activities are not expected to be affected by Alternative 1. Because of the reduced numbers of
6 people, it is expected that the potential for spills would be reduced during training and
7 maintenance activities. Waste collection, storage, and disposal processes would remain mostly
8 unchanged, although the quantities may be reduced. No violation of hazardous waste regulations
9 or the Fort Meade hazardous waste permit is anticipated as a result of force reductions. Volumes
10 of generated waste are expected to decline depending on the specific units affected.

11 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
12 regulations governing the handling, management, disposal, and clean up, as appropriate, of
13 hazardous materials and hazardous waste. Even if the full end-strength reductions were to be
14 realized at Fort Meade, the Army would ensure that adequate staffing remains so that the
15 installation would comply with all mandatory environmental regulations.

16 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
17 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
18 therefore, potential impacts from these activities are not analyzed.

19 **4.18.16 Traffic and Transportation**

20 **4.18.16.1 Affected Environment**

21 Transportation in and around Fort Meade is achieved mainly via road and street networks,
22 pedestrian walks, trails, and limited bike paths, supported by an extensive commuter rail and bus
23 network. The transportation system serves installation traffic consisting of everyday work, living,
24 and recreation trips (USACE, 2012).

25 **Off-Installation Roadways**

26 Local roadways providing direct access to the installation include the Patuxent Freeway (MD
27 32), Fort Meade Road (MD 198), Reece Road (MD 174), and Annapolis Road (MD 175)
28 (USACE, 2012). MD 175 generally operates with good LOS during peak hours (U.S. Army,
29 2010). Farther to the west is the Baltimore–Washington Parkway (MD 295). MD 295 can be
30 congested during the morning and afternoon peak hours in the peak direction of flow carrying
31 traffic north-south between Baltimore, Maryland, and Washington, DC. MD 295 is adjacent to
32 Fort Meade, extending southwest-northeast. It is a freeway that links Fort Meade to Washington,
33 DC (and points south) to the southwest and Baltimore, Maryland; Philadelphia, Pennsylvania;
34 and Wilmington, Delaware, to the northeast. I-95 generally parallels MD-295 and is
35 approximately 5 miles from the installation (USACE, 2012).

1 **Installation Roadways and Gate Traffic**

2 Transportation on roadways in and around Fort Meade during the morning and afternoon peak
3 periods typically experiences moderate to heavy delays at the gates for access to the installation.
4 A system of sidewalks primarily limited to troop areas and military housing accommodates
5 pedestrian traffic. Troop pathways are provided between foot traffic high-volume areas (USACE,
6 2012). Roadway widenings (five projects) and ACP improvements (two projects) designated as
7 necessary to accommodate BRAC personnel were documented in the Final EA for Road
8 Improvements (U.S. Army, 2010); however, only two intersection projects have been completed
9 with the remainder unfunded.

10 Fort Meade (not including the NSA) can be accessed by five ACPs. All ACPs are gated entry,
11 and vehicle occupants undergo identification card checks and random vehicle inspections at
12 these points. Gate 7 (Demps Control Center, Reece Road Gate) is the only gate that provides 24-
13 hour access, and all visitors without a DoD decal and identification badge must use this gate
14 (USACE, 2012).

15 **Air, Rail, and Public Transportation**

16 The closest airport—Baltimore/Washington International Thurgood Marshall—is approximately
17 10 miles from Fort Meade. It provides commercial cargo and passenger air service. Amtrak
18 passenger rail service has stations in Washington, DC, Baltimore, and Baltimore/Washington
19 International Thurgood Marshall Airport, where connections can be made to areas throughout the
20 country (USACE, 2012).

21 MARC, part of the Maryland Transit Administration (MTA) provides commuter rail service
22 along the Penn line (same line as Amtrak) extending from Perryville and Aberdeen through
23 Baltimore to Washington, DC, including stops at Baltimore/Washington International Thurgood
24 Marshall Airport, Odenton (less than 4 miles from Fort Meade), the New Carrollton Metro
25 Station and Washington Union Station (MTA, 2014). Fort Meade operates a shuttle service to the
26 Odenton MARC station during the morning and evening rush hours (USACE, 2012). MARC
27 also provides commuter rail service between Baltimore and Washington along the Camden line,
28 which is primarily west of the Penn line, beginning at Camden Yard in Baltimore, with stops
29 including Laurel (less than 6 miles from Fort Meade), the Greenbelt Metro Station and
30 Washington Union Station (MTA, 2014).

31 In addition to MARC, MTA administers and operates an interconnected system of subway
32 (heavy rail), light rail, city buses and commuter buses that directly or indirectly serve Fort
33 Meade. The MTA also supports WMATA, which provides bus connections to
34 Baltimore/Washington International Thurgood Marshall Airport and other locations near Fort
35 Meade, and the WMATA subway (heavy rail) system with 6 lines and more than 100 stations
36 connecting the Washington area (MTA, 2014).

1 The (Baltimore) Metro heavy rail system provides high-speed transit service in a 15.5-mile
2 corridor from Owings Mills in western Baltimore County through downtown Baltimore to Johns
3 Hopkins Hospital. Passengers can transfer to light rail covering additional service portions of
4 Baltimore City, Baltimore County, and Anne Arundel County, including Baltimore/Washington
5 International Thurgood Marshall Airport (MTA, 2014). Local bus routes provided by MTA,
6 WMATA, and Connect-A-Ride (sponsored by Anne Arundel and Howard counties) serve
7 Odenton and Fort Meade (USACE, 2012).

8 **4.18.16.2 Environmental Effects**

9 **No Action Alternative**

10 The No Action Alternative would continue the current trends of increasing traffic congestion on
11 roadways near or on the installation itself, including continued personnel increases by various
12 tenants of Fort Meade. The traffic impact is currently moderately significant and although two
13 intersection improvement projects have been completed within the fence line of the installation,
14 other needed road widening projects and ACP replacements have not been constructed.
15 Maryland State Highway has completed one intersection improvement project on MD 175 and
16 will be awarding two others in 2014. However, difficulties in retention of trained gate guards
17 have resulted in the closure of one ACP and reducing the effectiveness of any
18 roadway improvement.

19 **Alternative 1—Implement Force Reductions**

20 Alternative 1 would result in a minor, beneficial improvement in traffic on and off the
21 installation related to the reduction of personnel. If the maximum population reduction scenario
22 of 3,500 were to be implemented, reducing the installation population by approximately
23 7 percent, a slight decrease in congestion is expected on the installation and nearby; however,
24 this may be offset by increases in other tenants, including NSA.

25 **4.18.17 Cumulative Effects**

26 The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Meade consists
27 of Anne Arundel, Baltimore, Howard, and Prince George's counties in Maryland. No specific
28 planned or proposed government sector layoffs or downsizing within the ROI are known to Fort
29 Meade that would further reduce employment or economic activity with the ROI.

30 **Reasonably Foreseeable Future Projects on Fort Meade**

31 There are currently 14 major construction projects that are ongoing and or funded to begin.
32 These projects would continue to grow the installation for which the Army workforce is
33 responsible to support and integrate into the overall functioning of the installation, including:

- 1 • Route 175 intersections
- 2 • Rockenbach ACP
- 3 • Enhanced Use Lease office building
- 4 • Army and Air Force Exchange Service Exchange Service
- 5 • Reece Crossings Apartment Project
- 6 • Candlewood Suites Privatized Lodging
- 7 • multiple NSA East Campus projects
- 8 • a major water reclamation project

9 **Reasonably Foreseeable Future Projects outside Fort Meade**

10 The Army is not aware of any reasonably foreseeable future projects outside Fort Meade which
11 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
12 projects and actions that affect regional economic conditions and generally include construction
13 and development activities, infrastructure improvements, and business and government projects
14 and activities. Additionally, larger economies with more job opportunities could absorb some of
15 the displaced Army workforce, lessening adverse effects on force reductions.

16 **No Action Alternative**

17 Implementation of the No Action Alternative in conjunction with these projects would not result
18 in any significant cumulative effects on resources at the installation. Current socioeconomic
19 conditions would persist within the ROI, and the No Action Alternative would not contribute to
20 any changes.

21 **Alternative 1—Implement Force Reductions**

22 Implementation of Alternative 1 with these projects would not result in any significant
23 cumulative effects on most resources at the installation. The socioeconomic impact within the
24 ROI, as described in Section 4.18.12.2 with a reduction of approximately 3,500 Soldiers and
25 Army civilians, would be minor and adverse on population, the regional economy, housing, with
26 potential significant impacts to some schools.

27 Fort Meade is located in the greater Baltimore metropolitan area, and the ROI has a population
28 of over 1.2 million. Because of the large employment base and diverse economy in the region,
29 the ROI would be less vulnerable to these force reductions because other industries and
30 considerable economic activity occurs within the ROI. Other construction and development
31 activities on the installation and in the ROI would benefit the regional economy through
32 additional economic activity, jobs, and income in the ROI.

1 Other stationing and realignment activities on the installation are not expected to add to these
2 force reductions. Aberdeen Proving Ground is also located within the Baltimore region, and is
3 expected to incur a loss of up to 4,272 Soldiers and Army civilians. Aberdeen Proving Ground is
4 located northeast of the city of Baltimore, while Fort Meade is located southwest of the city. The
5 two installations have one common county in their ROIs, Baltimore County. While the majority
6 of the regional economic impact would be experienced within the respective ROIs, the
7 cumulative impacts associated with both installations' force reductions could lead to additional
8 adverse regional economic impacts in the greater Baltimore metropolitan region and the state of
9 Maryland overall.

10 Under Alternative 1, the loss of approximately 3,500 Soldiers and Army civilians, in conjunction
11 with other reasonably foreseeable actions, would have a minor, adverse impact on regional
12 economic conditions in the broader ROI. However, schools that provide education to Fort Meade
13 students might be significantly adversely impacted under Alternative 1; the cumulative force
14 reductions at Aberdeen Proving Ground are not expected to contribute to these impacts.

1 **4.19 Fort Polk, Louisiana**

2 **4.19.1 Introduction**

3 Fort Polk was analyzed in the 2013 PEA. Background information on the installation, including
4 location, tenants, mission, and population, is discussed in Section 4.16.1 of the 2013 PEA. The
5 following updates the information provided in the 2013 PEA.

6 Fort Polk's Main Post is composed of DoD and USFS-permitted lands totaling approximately
7 152,303 acres. DoD-owned lands are located to the north of the Main Post totaling 66,998 acres.
8 USFS-permitted lands are located to the south of the Main Post and are separated into two areas.
9 The Intensive Use Area is located in the middle of the Main Post and is approximately 40,481
10 acres and contains approximately half of the installation's ranges. The Limited Use Area is
11 located in the southern portion of the Main Post and is approximately 44,824 acres. Lands
12 utilized on the USFS, Kisatchie National Forest, are governed by a special use permit agreement
13 and operating plan. Peason Ridge is approximately 56,831 acres and is used to support both
14 Army maneuver and live-fire training, but is not used for long-term housing of Army personnel
15 or civilians, which occurs only on the Main Post. In February 2010, the Joint Readiness Training
16 Center (JRTC) and Fort Polk Land Acquisition Program Final EIS was completed. Expansion of
17 Fort Polk, up to 100,000 acres, was analyzed and the installation received the authorization to
18 actively pursue the Land Acquisition Program. In FY 2012, the USACE began closing on some
19 of these new properties. To date, approximately 23,341 acres of new training lands have been
20 purchased and is reflected in the new acreage amount for Peason Ridge. Fort Polk uses National
21 Forest property north of Peason Ridge in an area of USFS land referred to as the Special Limited
22 Use Area or "Horse's Head" due to its configuration. The Special Limited Use Area consists of
23 12,820 acres and is available for limited training by JRTC and Fort Polk. The Army has leased a
24 parcel of land to support the transport and convoys of units to and from Main Post to Peason
25 Ridge commonly referred to as the "yellow brick road."

26 Airfield deployment/redeployment activity associated with JRTC rotations or mobilization take
27 place on the JRTC Intermediate Staging Base at the Alexandria Airport. This site can accept and
28 support (landing, loading, and refueling) any combination of size and number of Air Force or
29 civilian transport aircraft required under any operational scenario at the installation.

30 Fort Polk has four strategic deployable units stationed on installation: 162nd Infantry Brigade
31 totaling 1,366; 4th Brigade of the 10th Mountain Division with approximately 3,495 Soldiers; 1st
32 Maneuver Enhancement Brigade with 2,603 Soldiers and the 115th Combat Support Hospital
33 troop strength of 266. JRTC Training Center of Excellence has 1,230 Soldiers within their
34 Operations Group. Several Louisiana, Texas, and Mississippi reserve and ARNG units are
35 trained during annual training periods at JRTC and Fort Polk. JRTC conducts at least 10, but no
36 more than 12 rotations annually with an average of 3,487 transient and rotational average daily
37 load per training event.

1 The 5th Aviation Battalion (Provisional) has 28 permanently assigned rotary-wing aircraft: 18
2 LUH-72 Lakotas and 10 OH-58 Kiowas. Det 1 Company B 256 BSTB, Louisiana ARNG,
3 conducts RQ-7A and B Shadow UAS launch and recovery operations from its Tactical UAS
4 Operations Facility. There are several permanently assigned aircraft located at Polk AAF that
5 serve to support JRTC rotational training activities. The 147th Reconnaissance Wing from the
6 Texas Air National Guard is another tenant unit that flies the MQ-1 Predator UAS in support of
7 U.S. Air Force Green Flag East exercises in conjunction with JRTC rotational training. Polk
8 AAF also supports transient C-130 airlift operations in support of JRTC rotational training, as
9 well as transient VIP aircraft. Currently a site survey is planned at Polk AAF in late April 2014
10 to evaluate the potential bed-down of a Gray Eagle UAS detachment from the National
11 Training Center.

12 Fort Polk's 2011 baseline permanent party population was 10,836. In this SPEA, Alternative 1
13 assesses a potential population loss of 6,500, including approximately 6,039 permanent party
14 Soldiers and 461 Army civilians.

15 **4.19.2 Valued Environmental Components**

16 For alternatives the Army is considering as part of its 2020 force structure realignment, no
17 significant, adverse environmental impacts are anticipated for Fort Polk; however, significant
18 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
19 4.19-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.19-1. Fort Polk Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Negligible	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	No Impacts	Negligible
Soils	Minor	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Beneficial
Water Resources	Negligible	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

2 **4.19.3 Air Quality**

3 **4.19.3.1 Affected Environment**

4 The air quality affected environment of the Fort Polk ROI remains the same as described in
 5 Section 4.16.2.1 of the 2013 PEA. The Fort Polk area has not been designated as a nonattainment
 6 area for any criteria pollutants (EPA, 2013).

7 **4.19.3.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, the 2013 PEA concluded that mobile and stationary source
 10 emissions, as well as emissions from training, at current levels would result in negligible impacts
 11 to air quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as
 12 described in the 2013 PEA.

13 **Alternative 1—Implement Force Reductions**

14 The 2013 PEA concluded that force reductions at Fort Polk would result in minor, beneficial
 15 impacts to air quality because of reduced operations and maintenance activities and reduced
 16 vehicle miles traveled associated with the installation. Impacts to air quality from the further
 17 force reductions proposed under Alternative 1 would continue to be beneficial assuming a

1 corresponding decrease in operations and vehicle travel to and from Fort Polk. The size of this
2 beneficial impact under Alternative 1 would be slightly increased than that identified in the 2013
3 PEA. As discussed in Chapter 1, the demolition of existing buildings or placing them in
4 caretaker status as a result of the force reductions is not reasonably foreseeable and not part of
5 the scope of this SPEA; therefore, potential impacts to air quality from these activities are
6 not analyzed.

7 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
8 quality regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the
9 Army would ensure that adequate staffing remains so that the installation would comply with all
10 mandatory environmental regulations.

11 **4.19.4 Airspace**

12 **4.19.4.1 Affected Environment**

13 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
14 Section 4.16.1.2 due to lack of significant, adverse environmental impacts as a result of
15 implementing alternatives included in that analysis. Polk AAF operates 24 hours a day, 7 days a
16 week to provide support services for all tenant and rotational training air crews at JRTC. Polk
17 Army Radar Approach Control manages and controls FAA-delegated airspace above central
18 Louisiana and eastern Texas. Control of this airspace allows JRTC the flexibility to complete
19 Army and joint aviation training for missions across the range of military operations. Polk Army
20 Radar Approach Control controls all military, commercial, and general aviation departures and
21 arrivals at Polk AAF, Alexandria International Airport, and 20 satellite airports, and it de-
22 conflicts civil traffic with complex military operations at JRTC. Fort Polk manages a dedicated
23 SUA that spans 1,100 square miles around the installation, up to and including 18,000 feet. Fort
24 Polk has access to this SUA continuously and air operations take place day and night within this
25 area. The SUA defines the airspace within which military aircraft vertical and horizontal
26 maneuver must be limited or restricted and provides for the separation of military aircraft from
27 non-participating aircraft.

28 **4.19.4.2 Environmental Effects**

29 **No Action Alternative**

30 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
31 airspace at Fort Polk under the No Action Alternative. For the current analysis, Fort Polk would
32 continue to maintain current airspace operations and current airspace classifications and
33 restrictions are sufficient to meet current airspace requirements. No airspace conflicts are
34 anticipated and impacts to airspace would remain the same as described in the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
3 would occur at Fort Polk. Under Alternative 1, implementation of proposed further force
4 reductions would continue to have negligible, adverse impacts to airspace. The use of airspace
5 would not change substantially with the loss of ground units as a result of this alternative and
6 both general aviation and UAS would continue to require airspace to support training. The
7 implementation of Alternative 1 would not result in a decreased requirement from airspace, but
8 rather a lower utilization and less frequent activation of existing airspace.

9 **4.19.5 Cultural Resources**

10 **4.19.5.1 Affected Environment**

11 Cultural resources were dismissed from detailed analysis in Section 4.4.1.2 of the 2013 PEA due
12 to negligible impacts associated with implementing the alternatives included in that analysis.
13 Existing protocols and procedures outlined in the Fort Polk ICRMP (Fort Polk, 2012) and other
14 agreements describe the standard operating procedures for managing and protecting resources on
15 the installation. As described in the 2013 PEA, undertakings with the potential to affect
16 archaeological resources are monitored and regulated when anticipated and preventative and
17 minimization measures employed when determined necessary.

18 As noted in the 2013 PEA, Fort Polk completed archaeological surveys for the entirety of the
19 installation. These surveys have resulted in the identification of 3,390 archaeological sites, of
20 which 129 of those have been determined eligible for listing in the NRHP and 157 are potentially
21 eligible. Eligible archaeological sites are monitored twice a year and potentially eligible sites are
22 monitored once a year. Fort Polk also manages and monitors 19 historic cemeteries.

23 There are no architectural resources that are eligible for listing on the NHPA present at Fort
24 Polk. An architectural survey was completed in 2010 to determine if there are Cold War Era
25 resources present at the installation and to evaluate their eligibility to the NRHP. All Cold War
26 Era buildings were determined not eligible for listing on the NRHP.

27 There has been a change to the affected environment since 2013; the available land base for
28 training is increasing due to the Fort Polk Land Purchase Program. The number of cultural
29 resource sites presented above reflects only those sites located on originally owned and permitted
30 training lands. Newly acquired lands are currently being surveyed for cultural resources as was
31 required by the 2010 EIS for the Fort Polk Land Acquisition Program. To meet this commitment,
32 IMCOM has resourced cultural resource survey work on these new properties and provides the
33 staff for maintaining protective signage at eligible or potentially eligible sites as well as for the
34 curation of artifacts from DoD owned or permitted property. Archaeological and historic
35 resources identified and determined eligible or potentially eligible during these surveys would be
36 managed following the protocols and procedures currently in place.

1 **4.19.5.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible impacts to cultural
4 resources and the affected environment would remain in its current condition. The addition of
5 new lands to the installation would not change these impacts.

6 **Alternative 1—Implement Force Reductions**

7 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to cultural
8 resources would occur at Fort Polk due to existing protocols and procedures that ensure the
9 consideration of cultural resources during undertakings with the potential to affect resources.
10 Fort Polk anticipates that a further reduction in forces will not change this finding because the
11 protocols and procedures currently in place with continue to be utilized.

12 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
13 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort
14 Polk, the Army would ensure that adequate staffing remains so that the installation would
15 comply with all mandatory environmental regulations.

16 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
17 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
18 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
19 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
20 necessary to vacate or demolish structures as a result of force reductions, the installation would
21 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
22 consultation to avoid, minimize, and/or mitigate these effects.

23 **4.19.6 Noise**

24 **4.19.6.1 Affected Environment**

25 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
26 Section 4.16.1.2, due to negligible impacts as a result of implementing alternatives included in
27 that analysis. Fort Polk's acoustic environment is typically impacted by noise-generating
28 activities such as commercial air traffic, logging operations near the installation, highway and
29 road traffic, and hunting, as well as military training.

30 As discussed in the 2013 PEA, the principal sources of noise resulting from military training
31 operations at JRTC and Fort Polk result from fixed wing and rotary-wing aircraft and bomb blast
32 noises generated from JRTC training activities. Training noise impacts may include noise from
33 large caliber weapons, small arms, other ordnance, fixed-wing aircraft, rotary-wing aircraft,
34 military vehicles, and other daily operations. The small arms ranges at Zion Hills and Peason

1 Ridge did not need noise contours as even 50 caliber rifle noise did not extend beyond the
2 installation border. Noise from large caliber weapons fire and artillery may extend 3,280 to
3 16,404 feet from the installation boundary and is categorized in a normally incompatible NZ II.
4 NZ III, classified as incompatible, does not extend beyond the installation. Noise measurements
5 taken by the U.S. Army Center for Health Promotion and Preventive Medicine (now the U.S.
6 Army Public Health Command) show that the noise experienced on-installation is slightly higher
7 than the levels experienced off-installation.

8 Fort Polk's IONMP is intended to address noise issues in a proactive manner. Elements of the
9 IONMP include assessment of noise levels, education of the military and civilian community,
10 management of noise complaints, mitigation of noise and vibration, the "Fly Neighborly"
11 program, and noise abatement procedures. Fort Polk's Public Affairs Office maintains a Noise
12 Hotline to receive noise complaints or other concerns about military training. The Public Affairs
13 Office monitors the hotline daily and has a policy of responding to complaints within 24 hours.

14 **4.19.6.2 Environmental Effects**

15 **No Action Alternative**

16 The 2013 PEA anticipated no noise impacts because noise generating activities at the installation
17 would continue at the same levels and intensity as historically experienced. Impacts under the No
18 Action Alternative on Fort Polk remain the same as those discussed in Section 4.16.1 of the
19 2013 PEA.

20 **Alternative 1—Implement Force Reductions**

21 Under Alternative 1, existing ranges would still be utilized for firing the same types of weapons
22 systems and conducting the same types of training. A negligible reduction in the frequency of
23 noise generating training events is anticipated. The operations of JRTC would continue to be the
24 major generator of training related noise. The number of weapons qualifications and maneuver
25 training events could be anticipated to decrease slightly. Noise impacts would likely remain
26 comparable to current conditions. The current frequency of aviation training activities, a
27 significant contributor of noise at the installation, may be decreased, but no changes are
28 anticipated to dB levels; therefore, expected impacts would be negligible. Sensitive wildlife
29 populations would not be impacted by the reduction of personnel at Fort Polk. Wildlife in the
30 area is noise-tolerant, having become habituated to noise in the current training environment.
31 Noise from simulated artillery rounds and .50 caliber blank weapons fire and small arms fire has
32 not been shown to affect RCW nesting or reproductive success, even for those inhabiting direct
33 fire ranges and impact areas (Delaney et al., 2000).

34 The 2013 PEA concluded that the force reductions at Fort Polk would result in negligible noise
35 impacts because Fort Polk would have a negligible anticipated reduction in the frequency of
36 noise generating training events. The size of this impact under Alternative 1 would be similar to

1 that described in the 2013 PEA. The Army is committed to ensuring that personnel cuts will not
2 result in non-compliance with noise ordinances and regulations. Even if the full end-strength
3 reductions were to be realized at Fort Polk, the Army would ensure that adequate staffing
4 remains so that the installation would comply with all mandatory environmental regulations
5 including noise ordinances and regulations.

6 **4.19.7 Soils**

7 **4.19.7.1 Affected Environment**

8 The soils affected environment on the installation remains the same as described in Section
9 4.16.3.1 of the 2013 PEA.

10 **4.19.7.2 Environmental Effects**

11 **No Action Alternative**

12 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
13 anticipated from continuing training, to include impacts to soils from removal of or damage to
14 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
15 used in training events. Impacts under the No Action Alternative on Fort Polk remain the same
16 as those discussed in Section 4.16.3.2 of the 2013 PEA.

17 **Alternative 1—Implement Force Reductions**

18 Under Alternative 1 of the 2013 PEA, negligible, adverse impacts to soils were anticipated as a
19 result of less use of training areas. A force reduction would result in less erosion, soil
20 compaction, and loss of vegetation.

21 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
22 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
23 potential impacts from these activities on soils are not analyzed.

24 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
25 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
26 Polk, the Army would ensure that adequate staffing remains so that the installation would
27 comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Polk
28 would be beneficial and remain the same as those discussed in Section 4.16.3.2 of the 2013 PEA.

1 **4.19.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
2 **Species)**

3 **4.19.8.1 Affected Environment**

4 Biological resources are among the VECs excluded from detailed analysis as described in
5 Section 4.16.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts
6 resulting from the implementation of alternatives included in this analysis. Fort Polk recently
7 completed the FY 2014–2019 INRMP. Within this comprehensive plan is the Endangered
8 Species Management component which identifies the management actions for the endangered
9 RCW. The most positive benefit of this INRMP is the commitment that has been made to protect
10 and manage the natural resources on the training lands (Fort Polk, 2014a). This commitment will
11 ensure training lands are maintained in a sustainable mindset, while allowing for ecosystem
12 management simultaneously to ensure quality ecosystem for future generations. As the training
13 mission evolves, natural resources management practices will continuously adapt to ensure a
14 healthy ecosystem is managed for future generations to enjoy, while continuously supporting the
15 training environment for Soldiers.

16 The baseline data for Fort Polk has changed over the last few years and continues to change due
17 to an ongoing land purchase program at the installation. Currently 23,341 acres have been
18 purchased with a sale agreement for another 9,500 acres. Most of the acres that have been
19 purchased to date were previously owned by large timber companies focused on short rotation
20 pine plantations optimized for the maximum economic value with little biodiversity or
21 sustainment activities occurring on these areas. Fort Polk is in the process of performing timber
22 inventories and stand descriptions to determine the current timber species, age and class present.
23 Additionally these lands are being surveyed for the placement of fire breaks to contain fires on
24 these lands due to future management and training activities. These new lands are also being
25 surveyed for the presence of threatened and endangered species.

26 Currently, 13,352 acres have been surveyed, thus resulting in the identification of 16 new forest
27 management compartments. No threatened or endangered species have been observed to be
28 present on these lands. An additional 9,989 acres are under timber inventory and threatened and
29 endangered species surveys; to date, no threatened or endangered species have been identified.

30 **4.19.8.2 Environmental Effects**

31 **No Action Alternative**

32 Implementation of the No Action Alternative would result in no significant impacts to biological
33 resources and the affected environment would remain in its current state. Fort Polk would
34 continue to adhere to its existing resource management plans and INRMP to further minimize
35 and monitor any potential effects.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of Alternative 1 in the 2013 PEA concluded that impacts to biological resources
3 would be negligible on Fort Polk. Furthermore, the Army expects that the reduction in training
4 activities due to force reduction Fort Polk would increase the ease of environmental monitoring
5 and would decrease the chance for impacts to vegetation and wildlife. The Army anticipates that
6 further proposed reduction in forces would not change this finding. Fort Polk has one federally
7 listed endangered species, the RCW (*Picoidies borealis*) and one candidate species, the
8 Louisiana pine snake (*Pituophis ruthveni*). No adverse impacts to threatened or endangered
9 species are anticipated as a result of Alternative 1.

10 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
11 natural resources regulations. Even if the full end-strength reductions were to be realized at Fort
12 Polk, the Army would ensure that adequate staffing remains so that the installation would
13 comply with all mandatory environmental regulations.

14 **4.19.9 Wetlands**

15 **4.19.9.1 Affected Environment**

16 The wetlands affected environment on the installation remains the same as described in Section
17 4.16.4.1 of the 2013 PEA.

18 **4.19.9.2 Environmental Effects**

19 **No Action Alternative**

20 Under the No Action Alternative in the 2013 PEA, negligible, adverse impacts to wetlands were
21 are anticipated from continued training schedules. Potential wetland impacts would be reviewed
22 and managed to be avoided, to the extent practicable, or mitigated. Impacts under the No Action
23 Alternative on Fort Polk remain the same as those discussed in Section 4.16.4.2 of the
24 2013 PEA.

25 **Alternative 1—Implement Force Reductions**

26 Alternative 1 of the 2013 PEA did not discuss impacts to wetlands; instead, it inadvertently
27 discussed impacts to soil erosion from force reductions. Under Alternative 1 of this SPEA,
28 beneficial impacts to wetlands are anticipated as a result of less use of ranges and training areas.
29 Less sedimentation and vegetation loss are anticipated, and degraded wetlands are expected to
30 restore towards their reference functions and values. Impacts to wetlands could conceivably
31 occur if the further force reductions decreased environmental staffing levels to a point where
32 environmental compliance could not be properly implemented. The Army is committed,
33 however, to ensuring that personnel cuts will not result in non-compliance with wetland
34 regulations. Even if the full end-strength reductions were to be realized at Fort Polk, the Army

1 would ensure that adequate staffing remains so that mandated environmental requirements would
2 continue to be met.

3 **4.19.10 Water Resources**

4 **4.19.10.1 Affected Environment**

5 The affected environment for water resources on Fort Polk remains the same as that described in
6 Section 4.16.5.1 of the 2013 PEA for watersheds, groundwater, water supply, and stormwater
7 resources. However, there have been changes to the affected environment for wastewater
8 resources. As part of the wastewater discharge system, there is a rapid infiltration process with
9 an overland flow discharge into the natural baygalls in the Zion Hills area. This overland flow
10 process is presently being de-commissioned and the site will be remediated to its original
11 forested state. The introduction of, and funded project to construct, two new WWTPs at South
12 Fort and North Fort, respectively, has officially begun through the Utility Privatization Provider,
13 American Water with a combined cost of \$85 million. The two new plants will be constructed
14 within the footprints of the original plants and will use an Activated Sludge process that will
15 discharge into the adjacent receiving streams at the plant sites. The new plants will not require
16 the additional overland flow system. Design of the new plants include stages of treatment to be
17 very receptive to low and/or high flow rates capable of accommodating fluctuations in
18 population (Fort Polk, 2014d).

19 **4.19.10.2 Environmental Effects**

20 **No Action Alternative**

21 In the 2013 PEA, negligible impacts to water resources were anticipated from the No Action
22 Alternative. Ongoing construction and training activities were expected to continue as would
23 implementation of environmental management, BMPs, and permitting leading to minimal
24 impacts. Impacts to water resources under the No Action Alternative would remain the same as
25 described in the 2013 PEA.

26 **Alternative 1—Implement Force Reductions**

27 Minor, beneficial impacts to water resources were anticipated from implementation of force
28 reductions under Alternative 1 in the 2013 PEA because of reduced demand for potable water
29 supply and an increase in available wastewater treatment capacity. Reduction in training area use
30 from force reductions on Fort Polk was also anticipated to potentially reduce impacts to surface
31 waters due to disturbance and spills. The 2013 PEA Alternative 1 stated that a reduction in
32 wastewater flows at the installation WWTP could result in inadequate discharges for operation.
33 However, the Army is committed to the health and safety of its tenants and the environment and
34 would make any operational or other changes necessary to ensure the proper operation of the
35 wastewater system at the new flow levels, including adequate staff to ensure all testing and
36 permit requirements continue to be met. Increased force reductions under Alternative 1 of this

1 SPEA would continue to have the same beneficial impacts to water supplies, wastewater
2 capacity, and surface waters.

3 Adverse water resources impacts could conceivably occur if personnel cuts prevented
4 environmental compliance from being implemented. The Army is committed to ensuring that
5 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
6 end-strength reductions were to be realized at Fort Polk, the Army would ensure that adequate
7 staffing remains so that mandated environmental requirements would continue to be met
8 and implemented.

9 **4.19.11 Facilities**

10 **4.19.11.1 Affected Environment**

11 Fort Polk consists of three general areas: cantonment, training and impact areas. The cantonment
12 area of Fort Polk consists of about 8,050 acres in the western portion of the installation. It
13 encompasses two developed areas North and South Fort that contain a mixture of permanent and
14 temporary structures and Family housing areas. South Fort Polk Cantonment is home to
15 installation, brigade, battalion, and company headquarters, maintenance and support facilities
16 and Polk AAF.

17 There are 2,383 buildings on the installation of which 96 are World War II era buildings still in
18 use. These World War II facilities are being used for interim administrative space until
19 permanent facilities can be constructed. It is anticipated by the end of FY 2015 approximately 67
20 of these facilities would remain. Significant, permanent structures within the cantonment include
21 the newly constructed post exchange, commissary, Bayne Jones Army Community Hospital,
22 multiple new clinics, Warrior in Transition Headquarters and Barracks, Library Education
23 Center, Mission Training Center, 34 enlisted unaccompanied personnel housing (26 of which
24 have been or are planned for renovation), two newly constructed Brigade Headquarters, a new
25 270 Soldier enlisted unaccompanied personnel housing unit, four new Company Headquarters,
26 language training facility, new tactical equipment maintenance facility, railhead and adjacent
27 support facilities, enhanced Family housing communities, and Family support facilities including
28 four large community centers with swimming pools.

29 Facilities utilized for training at Fort Polk are located outside the cantonment area. These
30 facilities include basic weapons and marksmanship ranges, direct fire gunnery ranges, collective
31 live fire ranges, non-live fire facilities, and other training areas.

32 Polk AAF consists of a 4,100-foot Class A precision runway with associated parking ramp,
33 taxiways, including a Shadow UAS runway. Excess hangar capacity at Polk AAF is used to
34 support severe weather evacuations during rotational training. JRTC and Fort Polk have three
35 recognized flight landing strips. All of the flight landing strips are unsurfaced runways for fixed
36 wing rotary aircraft with the capability of landing C-130 and C-17s (Fort Polk, 2014d).

1 **4.19.11.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA concluded that there would be no impacts to
4 facilities at Fort Polk. For the current analysis, Fort Polk would continue to use its existing
5 facilities to support its Soldiers and missions and many of the modernization projects that are
6 planned would be completed and sustainment activities would continue so impacts to facilities
7 would remain the same as described in the 2013 PEA.

8 **Alternative 1—Implement Force Reductions**

9 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
10 would occur on Fort Polk. Under Alternative 1, implementation of the proposed further force
11 reductions would result in overall minor, adverse impacts. Impacts would occur from the fact
12 that future, programmed construction or expansion projects may not occur or could be
13 downscoped, and moving occupants of older, underutilized, or excess facilities into newer
14 facilities may require modifications to existing facilities. Fort Polk has made substantial
15 investments in facilities in the last 10 years and the additional force reductions could cause
16 newer facilities to be underutilized due to reduced requirements for facilities, which would have
17 a negative impact on overall space utilization. Some beneficial impacts are also expected as a
18 result of force reductions such as reduced demands for utilities and reduced demands for training
19 facilities and support services. The force reductions would also provide the installation the
20 opportunity to reduce reliance on aging facilities nearing the end of the life-cycle. Some facilities
21 could be re-purposed to support tenant unit requirements. As discussed in Chapter 1, the
22 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
23 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
24 impacts from these activities are not analyzed.

25 **4.19.12 Socioeconomics**

26 **4.19.12.1 Affected Environment**

27 Fort Polk's Main Post is located in Vernon Parish, approximately 7 miles east of Leesville and
28 20 miles north of DeRidder in Louisiana. The ROI for Fort Polk includes those areas that are
29 generally considered the geographic extent to which the majority of the installation's Soldiers,
30 Army civilians, contractor personnel, and their Families reside and consists of Beauregard,
31 Natchitoches, Rapides, Sabine, and Vernon parishes.

32 This section provides a summary of demographic and economic characteristics within the ROI.
33 These indicators are described in greater detail in Section 4.16.7 of the 2013 PEA. However,
34 demographic and economic indicators have been updated where more current data are available.

1 **Population and Demographics**

2 Using 2011 as a baseline, Fort Polk has a total working population of 23,330 consisting of active
 3 component Soldiers and Army civilians, and other military services, contractors, and civilians.
 4 Of the total working population, 10,836 were permanent party Soldiers and Army civilians. The
 5 population that lives on Fort Polk consists of 9,390 Soldiers and an estimated 14,510 Family
 6 members, for a total on-installation resident population of 23,900 (Fort Polk, 2014b). The portion
 7 of Soldiers, Army civilians, and Family members living off the installation in 2011 was
 8 estimated to be 3,641.

9 In 2012, the ROI had a total population of 286,309, a 1.0 percent increase from 2010. Vernon
 10 Parish experienced the highest growth of the parishes in the ROI. Natchitoches Parish is the only
 11 parish in the ROI that experienced a decline in population. The population in the ROI is
 12 presented in Table 4.19-2, and the 2012 racial and ethnic composition of the ROI is presented in
 13 Table 4.19-3 (U.S. Census Bureau, 2012a).

14 **Table 4.19-2. Population and Demographics, 2012**

Region of Influence Parishes	Population	Population Change 2010–2012 (percent)
Beauregard Parish, Louisiana	36,240	+1.6
Natchitoches Parish, Louisiana	39,434	-0.3
Rapides Parish, Louisiana	132,270	+0.5
Sabine Parish, Louisiana	24,315	+0.3
Vernon Parish, Louisiana	54,050	+3.3

15 **Table 4.19-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Parishes	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Louisiana	63.7	32.4	0.7	1.7	1.4	4.5	59.9
Beauregard Parish, Louisiana	82.2	13.5	1.1	0.7	2.5	3.2	79.8
Natchitoches Parish, Louisiana	55.0	41.5	1.0	0.6	1.9	1.9	53.7
Rapides Parish, Louisiana	64.1	32.1	0.9	1.3	1.6	2.7	61.9
Sabine Parish, Louisiana	70.8	16.7	8.6	8.6	3.5	3.6	68.7
Vernon Parish, Louisiana	77.9	14.7	1.6	1.9	3.5	8.6	71.0

16 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

1 **Employment and Income**

2 Information presented in Table 4.19-4 represents an update from the 2013 PEA, which provided
 3 employment and income data from 2009. Between 2000 and 2012, the greatest increase in
 4 workforce occurred in Beauregard Parish, approximately 13.6 percent. Employed workforce in
 5 Vernon Parish remained relatively unchanged during this period (Table 4.19-4) (U.S. Census
 6 Bureau, 2000 and 2012b).

7 Beauregard and Vernon parishes have a median household income greater than other parishes in
 8 the ROI and in Louisiana as a whole. In Natchitoches Parish, the median household income is
 9 notably lower and the percent of people living below the poverty line is higher than other
 10 parishes in the ROI and Louisiana as a whole (U.S. Census Bureau, 2012b). The median home
 11 value in parishes in the ROI ranges from \$89,300 and \$117,400, all of which are lower than the
 12 Louisiana average (U.S. Census Bureau, 2012b).

13 Information regarding the workforce by industry for each parish within the ROI was obtained
 14 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 15 the employed labor force.

16 **Table 4.19-4. Employment and Income, 2012**

State and Region of Influence Parishes	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Louisiana	2,009,440	+7.5	137,700	44,673	18.7
Beauregard Parish, Louisiana	14,639	+13.6	89,900	46,762	14.8
Natchitoches Parish, Louisiana	16,111	+8.0	94,500	32,649	27.4
Rapides Parish, Louisiana	54,381	+7.0	117,400	40,946	19.9
Sabine Parish, Louisiana	8,972	+6.0	77,800	36,914	21.2
Vernon Parish, Louisiana	23,475	+0.1	89,300	46,260	12.6

17 ***Beauregard Parish, Louisiana***

18 The educational services, and health care and social assistance sector accounts for the greatest
 19 share of the total workforce in Beauregard Parish (19 percent). Retail trade is the second largest
 20 employment sector (12 percent), followed by the construction and manufacturing sectors (10
 21 percent individually). The Armed Forces account for 3 percent for the total workforce in
 22 Beauregard Parish. The nine remaining sectors account for the 46 percent of the workforce.

1 **Natchitoches Parish, Louisiana**

2 Similar to Beauregard Parish, the educational services, and health care and social assistance
3 sector is the primary employment sector in Natchitoches Parish (25 percent). Retail trade is the
4 second largest employment sector (13 percent), followed by manufacturing (11 percent). The
5 arts, entertainment, and recreation, and accommodation and food services also accounts for a
6 notable share of the total workforce in Natchitoches Parish (9 percent). The Armed Forces
7 account for less than 1 percent of the Natchitoches Parish workforce. The nine remaining sectors
8 account for 42 percent of the workforce.

9 **Rapides Parish, Louisiana**

10 The educational services, and health care and social assistance sector accounts for the greatest
11 share of the total workforce in Rapides Parish (30 percent). Retail trade is the second largest
12 employment sector (13 percent), followed by the construction; manufacturing; public
13 administration; arts, entertainment, and recreation, and accommodation and food services; and
14 professional, scientific, and management, and administrative and waste management services
15 sectors (7 percent individually). The Armed Forces account for 1 percent of the Rapides Parish
16 workforce. The 6 remaining sectors account for 21 percent of the total workforce.

17 **Sabine Parish, Louisiana**

18 The educational services, and health care and social assistance sector accounts for the greatest
19 share of the total workforce in Rapides Parish (20 percent). The agriculture, forestry, fishing and
20 hunting, and mining services sector is the second largest employment sector (18 percent),
21 followed by retail trade (11 percent). The construction (7 percent) and other services, except
22 public administration (7 percent) sectors, also account for a notable share of the total workforce
23 in Sabine Parish. The Armed Forces account for less than 1 percent of the workforce. The eight
24 remaining of sectors account for 37 percent of the total workforce.

25 **Vernon Parish, Louisiana**

26 The Armed Forces account for the greatest share of the total workforce in Vernon Parish (23
27 percent). The educational services, and health care and social assistance is the second largest
28 employment sector (17 percent), followed by public administration (12 percent). Retail trade also
29 represents a notable share of the total workforce in Vernon Parish (10 percent). The 10 remaining
30 sectors employ 38 percent of the workforce.

31 **Housing**

32 Currently, there are 3,570 Family housing and 110 senior bachelor units on the installation. An
33 additional 4,002 barrack spaces are available for unaccompanied personnel, and another 240 are
34 under construction. A 10-year housing renovation program for Family housing will conclude in
35 2015. Fort Polk, under the RCI housing program, has currently authorized a maximum of 3,661
36 housing units. Approximately 524 barracks spaces have been renovated to improve

1 accommodates (Fort Polk, 2014d). At any given time, approximately 95 percent of units are
2 available for occupancy while the remaining 5 percent undergo renovations in preparation of the
3 next occupants.

4 **Schools**

5 Military-connected students attend schools in Vernon and Beauregard parishes. The Vernon
6 Parish School Board governs 19 schools, which includes 1 alternative and 2 local education
7 agency schools, located on the installation (North Polk Elementary and South Polk Elementary).
8 In Vernon Parish, military-connected students attend 19 schools and account for 33 percent of
9 total district enrollment. In Beauregard Parish, military-connected students attend 12 schools and
10 account for 8 percent of total district enrollment. In total, 3,815 military-connected students
11 attend schools in these parishes. Schools with military-connected students receive approximately
12 \$6.5 million in Federal Impact Aid funds (Fort Polk, 2014d).

13 Funding has been set aside for two construction projects. Leesville High School in Vernon Parish
14 is currently undergoing a \$21.5 million renovation that is expected to be complete during the
15 2014–2015 academic year. An additional \$21.1 million has been allocated for the construction of
16 a new South Polk Elementary School that will be sited on Highway 467 North. The school will
17 serve between 800 students and 900 students in grades 1 through 4 (Fort Polk, 2014d).

18 **Public Health and Safety**

19 The DES Police Division employs 60 personnel and provides law enforcement, emergency
20 response, and property protection at Fort Polk. The Fort Polk Fire Department, a part of the DES,
21 employs 68 personnel and provides emergency firefighting, fire prevention, and rescue services
22 at Fort Polk. The DES Physical Security Division employs 26 personnel and provides support to
23 Fort Polk in the form of force protection, access control, and physical security inspections of
24 sensitive buildings, arms rooms, motor pools, Mission Essential Vulnerable Areas, and Secret
25 Internal Protocol Router Network Communication. Since 2004, all divisions have invested in
26 new technology and equipment (Fort Polk, 2014d).

27 Medical services on the installation are provided by Bayne Jones Army Community Hospital.
28 Healthcare services are available to military personnel and retirees, and their Family members. A
29 wide range of services are available, which include but are not limited to emergency services,
30 family and internal medicine, occupational therapy, and pediatrics. The installation also provides
31 dental services and supports a Warrior Transition Battalion. Additional information regarding
32 these facilities is provided in the 2013 PEA.

33 **Family Support Services**

34 The Fort Polk ACS provide programs, activities, facilities, services, and information to Soldiers,
35 retirees, and their Families in managing the challenges of daily living experienced in the unique
36 context of military service, and in maintaining readiness by coordinating and delivering

1 comprehensive, responsive services that promote self-reliance, resiliency and stability. The
2 installation has won awards for these programs and services.

3 In October 2010, a new Soldier and Family Assistance Center opened. This program provides a
4 safe haven that promotes healing and provides a number of services dedicated to the needs of
5 Wounded Warriors and their Families.

6 Fort Polk's CYSS offers programs for children and youth ages 4 weeks to 18 years. Programs
7 include child development and school-age centers, Family child care, and middle school/teen
8 programs. Since 2010, four new child development centers have been built and a new School-
9 Age Center is under construction and scheduled to open in 2015.

10 In September 2004, the Fort Polk MWR opened a new library that was included as part of the
11 Education Center and Library construction project. The renamed Home of Heroes Soldier
12 Recreation Center has also recently undergone renovations. Many facilities on the installation
13 have undergone upgrades and other renovations in recent years (Fort Polk, 2014d).

14 **Recreation Facilities**

15 Fort Polk's Community Recreation Division is designed to help sustain and build resiliency in
16 Soldiers and their Families through fitness, recreation, and leisure activities. A variety of
17 recreation opportunities are available to members of the Fort Polk community. Facilities and
18 programs include fitness centers, swimming pools, bowling center, Splash Park, miniature golf,
19 go carts, Comprehensive Soldier Fitness, outdoor recreational opportunities, Arts and Crafts
20 Center, Automotive Skills Program, among others. The HIRED! Apprentice Program, offered to
21 youth from ages 15 to 18 years, allows participation in a 12-week apprenticeship to gain
22 experience and knowledge in the workforce (Fort Polk, 2014d).

23 **4.19.12.2 Environmental Effects**

24 **No Action Alternative**

25 Operations at Fort Polk would continue to beneficial impact regional economic activity. No
26 additional impacts to housing, public and social services, public schools, public safety, or
27 recreational activities are anticipated.

28 **Alternative 1—Implement Force**

29 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
30 significant impact to socioeconomic resources. The description of impacts to the various
31 components of socioeconomics is presented below.

Population and Economic Impacts

Alternative 1 would result in the loss of up to 6,500²⁵ Army positions (6,039 Soldiers and 461 Army civilians), with an average annual income of \$46,760 and \$54,499, respectively. In addition, this alternative would affect an estimated 9,867 Family members, including 3,627 spouses and 6,240 children. The total number of military employees and their Family members who may be directly affected under Alternative 1 is projected to 16,367.

In accordance with the EIFS analysis, a significant impact is defined as a situation when the forecasted economic impact value falls outside the historical positive or negative range. Table 4.19-5 shows the deviation from the historical average that would represent a significant change for each parameter. The last row summarizes the deviation from the historical average for the estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated by the EIFS model. Based on the EIFS analysis, there would be significant impacts to income, employment, and population because the estimated change falls outside the deviation from the historical range. There would not be significant impacts to sales because the estimated percent change falls within the historical range.

Table 4.19-5. Economic Impact Forecast System and Rational Threshold Value Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.2	+5.0	+3.4
Economic contraction significance value	-5.2	-3.0	-5.2	-2.4
Forecast value	-2.9	-3.6	-7.3	-5.6

Table 4.19-6 summarizes the predicted impacts to income, employment, and population of force reductions against 2012 demographic and economic data. Whereas the forecast value provides a percent change from the historical average, the percentages in the following table show the economic impact as a percent of 2012 demographic and economic data. Although not in exact agreement with the EIFS forecasted values, these figures show the same significance determinations as the EIFS predictions in the previous table.

²⁵ This number was derived by assuming the loss of Fort Polk’s BCT, around 60 percent of Fort Polk’s non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 6,500. The 2013 PEA assumed the loss of Fort Polk’s BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 5,316.

1 **Table 4.19-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$369,438,700	-7,261 (Direct)	-16,367
		-1,164 (Induced)	
		-8,425 (Total)	
Total 2012 ROI economic estimates	\$10,713,741,000	117,578	286,309
Percent reduction of 2012 figures	-3.4	-7.2	-5.7

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 With a potential reduction in the population in the ROI, losses in sales, income, employment, and
 6 tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 7 cumulative force reductions. Because of the maximum potential loss of 6,500 Soldiers and Army
 8 civilians under Alternative 1, EIFS estimates an additional 761 direct contract service jobs would
 9 also be lost. An additional 1,164 induced jobs would be lost because of the reduction in demand
 10 for goods and services within the ROI. The total reduction in employment is estimated to be
 11 8,425, a significant reduction of 7.2 percent from the total employed labor force in the ROI of
 12 117,578. Income is estimated to reduce by \$369.4 million, a 3.4 percent decrease in income
 13 from 2012.

14 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$401.6 million.
 15 There would also be a loss in sales tax receipts to local and state governments. The state and
 16 average local sales tax for Louisiana is 8.89 percent (Tax Foundation, 2014). To estimate sales
 17 tax reductions, information on the proportion of sales that would be subject to sales taxes on
 18 average across the country was utilized. According to the U.S. Economic Census, an estimated
 19 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census,
 20 2012). This percentage and applicable tax rate was applied to the estimated decrease in sales of
 21 \$401.6 million, resulting in an estimated sales tax receipts decrease of \$5.7 million under
 22 Alternative 1.

23 Of the 286,309 people (including those residing on Fort Polk) who live within the ROI, 6,500
 24 Army employees and their estimated 9,867 Family members are predicted to no longer reside in
 25 the area under Alternative 1, resulting in a significant population reduction of 5.7 percent. This
 26 number could overstate potential population impacts because some people no longer employed
 27 by the military may continue to live and work within the ROI, finding employment in other
 28 industry sectors. However, because Fort Polk serves as a primary employer and as an economic
 29 driver within the ROI, the majority of displaced personnel are likely to move out of the area to
 30 seek other opportunities with the Army or elsewhere. There are few employment sectors in the
 31 ROI to absorb the number of displaced military employees. A small number of displaced

1 personnel may seek and find work within the ROI; however, others may not be able to find new
2 employment potentially affecting the unemployment rate.

3 **Housing**

4 The population reduction that would result under Alternative 1 would decrease housing demand
5 and increase housing availability on the installation and across the larger ROI, potentially
6 resulting in a decrease in median home values. The reduced demand for housing and increased
7 availability of housing associated with the force reductions has the potential to result in minor to
8 significant impacts to the housing market, with more adverse impacts in areas with high
9 concentrations of military residents, particularly in communities of Leesville, Deridder, and
10 some smaller municipalities within proximity to the installation.

11 **Schools**

12 Under Alternative 1, the potential reduction of 6,500 Soldiers and Army civilians would decrease
13 the number of children within the ROI by approximately 6,240. As described in Section
14 4.19.12.1, military-connected students represent a sizable share of total school district enrollment
15 in Vernon and Beauregard parishes. Subsequently, these school districts receive sizable Federal
16 Impact Aid funds. Under Alternative 1, it is anticipated that school districts in Vernon and
17 Beauregard parishes would experience a more significant decline in military-connected student
18 enrollment than other areas within the ROI. If enrollment in individual schools declines
19 significantly, schools may need to reduce the number of teachers, administrators, and other staff,
20 and potentially close or consolidate with other schools within the same school district should
21 enrollment fall below sustainable levels.

22 The allocation of Federal Impact Aid funds is based on the number of military-connected
23 students that individual school districts support. The actual projected loss of Federal Impact Aid
24 funds cannot be determined at this time due to the variability of appropriated dollars from year to
25 year, and the uncertainty regarding the specific impacts to ROI school enrollment. It is
26 anticipated that schools across the ROI, particularly in Vernon and Beauregard parishes, would
27 likely need fewer teachers and materials as enrollment declines. However, schools may also have
28 invested in capital improvements or new facilities, which require bond repayment/debt servicing.
29 With decreased revenue for these school districts, it may place additional burden on school
30 districts with potential implications for school operations. These are fixed costs that would not be
31 proportionately reduced such as those for operational costs (teachers and supplies).

32 These school districts depend on the allocation of Federal Impact Aid funds to operate their
33 schools and a decrease in this funding that may result under Alternative 1 has the potential to
34 result in significant, adverse impacts, particularly in Vernon Parish where the modernization of
35 one of the high schools and construction of a new elementary school has exhausted the school
36 board's bond authority (Fort Polk, 2014c).

1 Overall, schools within the ROI could experience significant, adverse impacts from the decline
2 in military-connected student enrollment that would result under Alternative 1.

3 **Public Services**

4 A reduction in personnel would have minor impacts to emergency services, fire, police, and
5 medical services because the reduction is anticipated to decrease the need for these services.
6 Adverse impacts to public services could conceivably occur if personnel cuts were to
7 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
8 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
9 any drawdown in military or civilian personnel, the Army is committed to meeting health and
10 safety requirements. Minor, adverse impacts are not expected because the existing service level
11 for the installation and the ROI would still be available.

12 **Family Support Services and Recreation Facilities**

13 Family Support Services and recreation facilities would experience reduced demand and use and
14 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
15 committed to meeting the needs of the remaining population on the installation. As a result,
16 minor impacts to Family Support Services and recreation facilities would occur under
17 Alternative 1.

18 **Environmental Justice and Protection of Children**

19 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
20 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
21 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
22 and adverse human health or environmental effects of its programs, policies, and activities on
23 minority and low-income populations” (EPA, 1994). As shown in Table 4.19-3, the proportion of
24 minority populations in Natchitoches Parish is greater than other parishes within the ROI and
25 Louisiana as a whole. Because minority populations are more heavily concentrated in
26 Natchitoches Parish, the implementation of Alternative 1 has the potential to result in adverse
27 impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly
28 affected under Alternative 1 move to areas outside the ROI. Of the parishes within the ROI,
29 Natchitoches, Rapides, and Sabine parishes have a higher proportion of populations living below
30 the poverty level when compared to the Louisiana average. Because the proportion of poverty
31 populations is greater than the state average, Alternative 1 could cause adverse impacts to
32 environmental justice populations. However, it is not anticipated that Alternative 1 would have
33 disproportionate impacts to minorities, economically disadvantaged populations or children in
34 the ROI because losses would be experienced across all income levels and economic sectors and
35 spread geographically throughout the ROI.

36 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
37 federal agencies are required to identify and assess environmental health and safety risks that

1 may disproportionately affect children and to ensure that the activities they undertake do not
2 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
3 were to be realized, the Army is committed to implementing required environmental compliance
4 and meeting the health and safety needs of people associated with the installation, including
5 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
6 environmental health and safety risks to children within the ROI. Additionally, this analysis
7 evaluates the effects associated with workforce reductions only, and any subsequent actions on
8 the installation that may require ground-disturbing activities that have the potential to result in
9 environmental health and safety risks to children, such as demolishing vacant buildings, is
10 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
11 as appropriate.

12 **4.19.13 Energy Demand and Generation**

13 **4.19.13.1 Affected Environment**

14 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
15 PEA as described in Section 4.16.1.2 due to lack of significant, adverse environmental impacts
16 resulting from the implementation of alternatives included in this analysis. The energy utilities
17 have been or are in the process of being privatized at Fort Polk. Fort Polk has also taken some
18 proactive measures for reduction in energy consumption such as installation of solar panels on
19 barracks, walking paths, pedestrian crosswalks; construction of LEED buildings; upgrading and
20 retrofitting existing heating ventilation and cooling systems to improve efficiency; installation of
21 LED lighting; and energy metering of buildings on the installation. No other significant changes
22 have occurred to the affected environment since 2013.

23 **4.19.13.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, the 2013 PEA dismissal statement concluded that there would
26 be negligible impacts to energy demand and generation at Fort Polk. For the current analysis,
27 maintenance of existing utility systems would continue and Fort Polk would continue to
28 consume similar types and amounts of energy so impacts to energy demand would remain the
29 same as described in the 2013 PEA.

30 **Alternative 1—Implement Force Reductions**

31 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
32 demand and generation would occur on Fort Polk. Under Alternative 1, minor, beneficial impacts
33 to energy are anticipated due to a further reduction in energy consumption associated with the
34 additional force reductions. The installation would also be better positioned to meet energy and
35 sustainability goals.

1 **4.19.14 Land Use Conflicts and Compatibility**

2 **4.19.14.1 Affected Environment**

3 The land use affected environment of the Fort Polk installation remains generally the same as
4 described in Section 4.16.8.1 of the 2013 PEA.

5 The primary purpose of all land uses at Fort Polk is to provide a realistic training environment
6 focused on achieving superior high operations tempo training for home and rotational units.
7 There are numerous secondary land uses respective of each garrison directorate's mission but all
8 are focused on supporting training, Soldiers and Families.

9 Vernon Parish and the communities within it that surround the installation have developed a
10 Comprehensive Land Use Plan intended to serve as a long-term blueprint for enhancing quality
11 of life in the parish, guiding investment opportunities and attracting new businesses to allow
12 growth moving into the future. The Vernon Parish Plan was completed in May 2011, and
13 provides a set of guiding policies that act as an advisory roadmap for key areas that affect the
14 local community's quality of life. There are currently no official land use plans or zoning
15 requirements for either Sabine or Natchitoches parishes.

16 The DPTMS Range Operations Mission is to maximize the capability, availability and
17 accessibility of ranges and training lands to support doctrinal training requirements of units that
18 train on the installation. As a result, Fort Polk implements programs to preclude incompatible
19 land uses on the installation's training capability. Additionally, installation training lands are
20 managed with an integrated training requirement and ecosystem approach as well as a
21 sustainable range outreach program with the local community. The installation also works to
22 ensure that other installation plans support the installation Range Complex Master Plan.

23 **4.19.14.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, the 2013 PEA concluded that no changes to land use
26 conditions would occur, and no impacts are anticipated. Impacts under the No Action Alternative
27 on Fort Polk remain the same as those discussed in Section 4.16.8.2 of the 2013 PEA.

28 **Alternative 1—Implement Force Reductions**

29 The 2013 PEA concluded that the force reductions at Fort Polk would result in negligible short
30 and long-term impacts to installation land use due to the loss of Soldiers. Impacts would be
31 similar to those described under Alternative 1 in the 2013 PEA.

32 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
33 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
34 at Fort Polk, the Army would ensure that adequate staffing remains so that the installation would

1 comply with all mandatory environmental regulations including land use ordinances
2 and regulations.

3 **4.19.15 Hazardous Materials and Hazardous Waste**

4 **4.19.15.1 Affected Environment**

5 As described in the 2013 PEA, hazardous materials are used on Fort Polk. The installation is a
6 RCRA large-quantity generator of hazardous wastes. Hazardous materials and waste are
7 primarily managed by the Environmental and Natural Resources Management Division, which
8 maintains a HWMP and an Oil and Hazardous Substances Contingency Plan. These documents
9 provide standard operating procedures for the collection, storage, transport, and disposal of
10 hazardous materials and waste. No substantial changes have occurred to the affected
11 environment since 2013.

12 **4.19.15.2 Environmental Effects**

13 **No Action Alternative**

14 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
15 Use of hazardous materials and generation of hazardous wastes would continue on Fort Polk in
16 accordance with all applicable laws, regulations and plans.

17 **Alternative 1—Implement Force Reductions**

18 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from
19 hazardous materials and hazardous waste would occur on Fort Polk. Alternative 1 in this SPEA
20 is not expected to involve major changes to the installation operations or types of activities
21 conducted on Fort Polk. Because of the reduced numbers of people, it is likely that the potential
22 for spills would be reduced further during training and maintenance activities. The volume of
23 waste generated and material requiring storage would increase slightly because deactivating units
24 would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in
25 this SPEA, Fort Polk would continue to implement its hazardous waste management in
26 accordance with its HWMP and applicable regulations and therefore, adverse impacts would
27 be minor.

28 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
29 environmental compliance from being implemented. The Army is committed to ensuring that
30 personnel cuts will not result in non-compliance with regulations governing the handling,
31 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
32 Even if the full end-strength reductions were to be realized at Fort Polk, the Army would ensure
33 that adequate staffing remains so that the installation would comply with all mandated
34 environmental requirements.

1 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
2 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
3 therefore, potential impacts from these activities are not analyzed.

4 **4.19.16 Traffic and Transportation**

5 **4.19.16.1 Affected Environment**

6 The transportation affected environment of the Fort Polk ROI remains effectively the same as
7 described in Section 4.16.10.1 of the 2013 PEA, except for the identification of a future bypass
8 along Highway 467, as noted in the Vernon Parish Comprehensive Plan (Fort Polk, 2014c). Fort
9 Polk has four-lane highways connecting it to north to Shreveport, and south to Lake Charles
10 along U.S. Highway 171 and west to Alexandria along Louisiana Highway 28.

11 JRTC and Fort Polk has seven ACPs that are open for access onto the installation. In April 2013,
12 a Traffic Study was completed at Fort Polk. This study did not find any significant issues or
13 failures of installation roadways.

14 **4.19.16.2 Environmental Effects**

15 **No Action Alternative**

16 Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. The existing
17 transportation system is determined to be sufficient to support the current traffic load; therefore,
18 negligible impacts to traffic and transportation systems are expected to continue.

19 **Alternative 1—Implement Force Reductions**

20 The 2013 PEA concluded that the force reductions at Fort Polk would result in beneficial
21 impacts to traffic and transportation systems. It is anticipated that traffic congestion would
22 diminish at key ACPs and entrance gates. The Fort Polk traffic system is currently providing
23 acceptable LOS for Fort Polk Soldiers, Family members, and Army civilian employees. The size
24 of the beneficial impact under Alternative 1 would be larger than anticipated at the time of the
25 2013 PEA due to further force reductions diminishing traffic congestion even more than
26 anticipated in the 2013 PEA.

27 **4.19.17 Cumulative Effects**

28 As noted in the 2013 PEA, the ROI for this cumulative impact analysis of Army 2020
29 realignment at Fort Polk encompasses Beauregard, Natchitoches, Rapides, Sabine and Vernon
30 parishes in Louisiana. Section 4.16.11 of the 2013 PEA noted numerous planned or proposed
31 actions within the ROI that reasonably could be initiated within the next 5 years and would have
32 the potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed
33 projects have been previously identified in the installation's Real Property Master Planning
34 Board and are programmed for future execution.

1 **Reasonably Foreseeable Future Projects on Fort Polk**

2 Additional actions that have been identified by the installation beyond those noted in the
3 cumulative effects analysis of the 2013 PEA include the following:

- 4 • Expansion of restricted airspace over new land
- 5 • Polk AAF runway extension

6 **Reasonably Foreseeable Future Projects outside Fort Polk**

7 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
8 future projects outside Fort Polk that would be appropriate for inclusion in the cumulative
9 impacts analysis. However, there are other projects and actions that affect regional economic
10 conditions and generally include construction and development activities, infrastructure
11 improvements, and business and government projects and activities. Additionally, smaller, less
12 diversified economies will be more vulnerable to force reductions and provide fewer
13 opportunities to displaced Army employees.

14 ***No Action Alternative***

15 There will be no cumulative effects due to the No Action Alternative, essentially the same as was
16 determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI,
17 and the No Action Alternative would not contribute to any changes.

18 ***Alternative 1—Implement Force Reductions***

19 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
20 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Polk are anticipated
21 to be significant and adverse for socioeconomics, with generally beneficial impacts for the
22 other resources.

23 The socioeconomic impact under Alternative 1, as described in Section 4.19.12.2 with force
24 reductions of 6,500, could lead to significant impacts to the population, the regional economy,
25 schools, and housing, specifically in the ROI cities of Alexandria, Deridder, and Leesville, and
26 Natchitoches Parish. Fort Polk has long been a key component of the region's economy,
27 employing several thousand Soldiers and civilian employees within the ROI. The relatively
28 smaller, rural economy of the ROI depends on the installation's employment and economic
29 activity. With fewer opportunities for employment, the ROI would likely not be able absorb
30 many of the displaced forces. Specifically, in Vernon Parish, the Armed Forces accounts for 23
31 percent of the workforce, demonstrating the importance of the installation to employment
32 opportunities in the region.

33 Stationing changes would also affect regional economic conditions through the jobs and income
34 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,

1 supporting additional jobs, income, taxes, and sales impacts. Reductions in Army employment
2 would be partially offset by Louisiana Department of Transportation projects as part of the
3 efforts to improve state highways. Other infrastructure improvements and construction and
4 development activity would also benefit the regional economy through additional economic
5 activity, jobs, and income in the ROI; however, these benefits would not offset the adverse
6 impacts under Alternative 1 and other adverse cumulative actions. Under Alternative 1, the loss
7 of 6,500 Soldiers, in conjunction with other reasonably foreseeable actions, would have
8 significant impacts to employment, income, tax receipts, housing values, and schools in the ROI.

1 **4.20 Fort Riley, Kansas**

2 **4.20.1 Introduction**

3 Fort Riley was analyzed in the 2013 PEA. Background information on the installation, including
 4 location, tenants, mission, and population is discussed in Section 4.17.1 of the 2013 PEA.

5 Fort Riley’s 2011 baseline permanent party population was 19,995. In this SPEA, Alternative 1
 6 assesses a potential population loss of 16,000, including approximately 15,357 permanent party
 7 Soldiers and 643 Army civilians.

8 **4.20.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental impacts are anticipated for Fort Riley; however, significant
 11 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 12 4.20-1 summarizes the anticipated impacts to VECs under each alternative.

13 **Table 4.20-1. Fort Riley Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Negligible
Biological Resources	Negligible	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Negligible
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Negligible	Beneficial

14 **4.20.3 Air Quality**

15 **4.20.3.1 Affected Environment**

16 The air quality affected environment of the Fort Riley ROI remains the same as described in
 17 Section 4.17.2.1 of the 2013 PEA. The Fort Riley area has not been designated as a
 18 nonattainment area for any criteria pollutants (EPA, 2013).

1 **4.20.3.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
4 emissions at current levels, as well as fugitive dust from training activities, would result in
5 minor, adverse impacts to air quality. Air quality impacts under the No Action Alternative for
6 this SPEA remain the same as described in the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The 2013 PEA concluded that the force reductions at Fort Riley would result in minor, beneficial
9 impacts to air quality because of reduced operations and maintenance activities and reduced
10 vehicle miles travelled associated with the facility. Impacts to air quality from the further force
11 reductions proposed under Alternative 1 would continue to be beneficial assuming a
12 corresponding decrease in operations and vehicle travel to and from Fort Riley. The size of this
13 beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the
14 2013 PEA.

15 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
16 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
17 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
19 quality regulations. Even if the full end-strength reductions were to be realized at Fort Riley, the
20 Army would ensure that adequate staffing remains so that the installation would comply with all
21 mandatory environmental regulations.

22 **4.20.4 Airspace**

23 **4.20.4.1 Affected Environment**

24 The airspace affected environment for Fort Riley remains the same as described in Section
25 4.17.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current
26 airspace requirements.

27 **4.20.4.2 Environmental Effects**

28 **No Action Alternative**

29 Impacts to Fort Riley under the No Action Alternative remain negligible, as described in Section
30 4.17.3.2 of the 2013 PEA. Fort Riley would maintain existing airspace operations.

1 **Alternative 1—Implement Force Reductions**

2 Force reductions under Alternative 1 are anticipated to result in a lower utilization of current
3 aviation assets and current airspace at Fort Riley. Restricted airspace would continue to be
4 sufficient to meet airspace requirements. Adverse impacts to airspace under Alternative 1 would
5 be negligible.

6 **4.20.5 Cultural Resources**

7 **4.20.5.1 Affected Environment**

8 The affected environment for cultural resources at Fort Riley has not changed since 2013, as
9 described in Section 4.17.4 of the 2013 PEA.

10 **4.20.5.2 Environmental Effects**

11 **No Action Alternative**

12 Implementation of the No Action Alternative would result in negligible impacts to cultural
13 resources as described in Section 4.17.4.2 of the 2013 PEA. Activities with the potential to affect
14 cultural resources would continue to be monitored and regulated through the use of existing
15 agreements and/or preventative and minimization measures.

16 **Alternative 1—Implement Force Reductions**

17 As described in Section 4.17.4.2 of the 2013 PEA, Alternative 1 would have a minor impact on
18 cultural resources. The Army is committed to ensuring that personnel cuts will not result in non-
19 compliance with cultural resources regulations. Even if the full end-strength reductions were to
20 be realized at Fort Riley, the Army would ensure that adequate staffing remains so that the
21 installation would comply with all mandatory environmental regulations.

22 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
23 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
24 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
25 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
26 necessary to vacate or demolish structures as a result of force reductions, the installation would
27 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
28 consultation to avoid, minimize, and/or mitigate these effects.

29 This alternative could result in some beneficial effects as a decrease in training activities could
30 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
31 fewer people to support, there may be a reduction in the number of undertakings with the
32 potential to affect cultural resources.

1 **4.20.6 Noise**

2 **4.20.6.1 Affected Environment**

3 The noise affected environment of the Fort Riley installation remains effectively the same as
4 described in Section 4.17.5.1 of the 2013 PEA.

5 **4.20.6.2 Environmental Effects**

6 **No Action Alternative**

7 Implementation of the No Action Alternative would result in negligible impacts to noise as
8 described in Section 4.17.5.2 of the 2013 PEA. Noise generating activities at the installation
9 would continue at the same levels and intensity as historically experienced.

10 **Alternative 1—Implement Force Reductions**

11 The 2013 PEA concluded that the force reductions at Fort Riley would result in negligible and
12 slightly beneficial noise impacts, since there would be a reduction in the frequency of noise
13 generating events. The beneficial impact under Alternative 1 would be similar to that described
14 the 2013 PEA.

15 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
16 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
17 Fort Riley, the Army would ensure that adequate staffing remains so that the installation would
18 comply with all mandatory environmental regulations including noise ordinances
19 and regulations.

20 **4.20.7 Soils**

21 **4.20.7.1 Affected Environment**

22 The soils affected environment on the installation remains the same as was discussed in Section
23 4.17.6.1 of the 2013 PEA.

24 **4.20.7.2 Environmental Effects**

25 **No Action Alternative**

26 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
27 anticipated from continued maneuver training. Impacts under the No Action Alternative on Fort
28 Riley remain the same as those discussed in Section 4.17.6.1 of the 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

30 Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated from
31 continued maneuver training. However, a force reduction would result in a reduction in training

1 and associated soil compaction and loss of vegetation. This training reduction would result in
2 less sediment discharge to state waters, so negligible impacts are anticipated.

3 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
4 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
5 potential impacts from these activities on soils are not analyzed.

6 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
7 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
8 Riley, the Army would ensure that adequate staffing remains so that the installation would
9 comply with all mandatory environmental regulations.

10 **4.20.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 11 **Species)**

12 **4.20.8.1 Affected Environment**

13 Habitat on Fort Riley consists of native grasslands, riparian woodlands, and converted farm lands
14 that are now characterized by tall- and mixed-grass prairie. Dominant vegetation types include
15 big bluestem, indiangrass, and switchgrass. The remainder of Fort Riley's natural area is
16 primarily woodland. Six federally and/or state-listed threatened and endangered species are
17 known to exist on Fort Riley along with 18 rare species, which are listed in Table 4.17-2 of the
18 2013 PEA. Environmental monitoring and habitat management on Fort Riley are conducted in
19 accordance with the 2010 INRMP (Fort Riley, 2010).

20 **4.20.8.2 Environmental Effects**

21 **No Action Alternative**

22 Implementation of the No Action Alternative would result in no significant impacts to biological
23 resources and the affected environment would remain in its current state. Fort Riley would
24 continue to adhere to its existing resource management plans and to further minimize and
25 monitor any potential impacts. Units are briefed prior to each training event regarding sensitive
26 areas on the installation, such as protected species habitat.

27 **Alternative 1—Implement Force Reductions**

28 The 2013 PEA concluded that the implementation of Alternative 1 in that 2013 PEA would have
29 a beneficial impact on biological resources. The Army anticipates that this beneficial impact
30 would persist at or above the level reported in the 2013 PEA with the implementation of further
31 reduction in forces in this SPEA. Biological resources and habitat would continue to be
32 monitored under the 2010 INRMP (Fort Riley, 2010). Additionally, proactive conservation
33 management practices would be more easily accomplished with reduced mission throughput and
34 there would be less training disturbance, allowing areas with habitat more time to recover and

1 less potential for training related disturbance. The Army is also committed to ensuring that
2 personnel cuts will not result in non-compliance with natural resources regulations. Even if the
3 full end-strength reductions were to be realized at Fort Riley, the Army would ensure that
4 adequate staffing remains so that the installation would comply with all mandatory
5 environmental regulations.

6 **4.20.9 Wetlands**

7 **4.20.9.1 Affected Environment**

8 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
9 Section 4.17.1.2 due to lack of significant, adverse environmental impacts as a result of
10 implementing alternatives included in that analysis. No changes have occurred to the affected
11 environment since 2013.

12 **4.20.9.2 Environmental Effects**

13 **No Action Alternative**

14 Implementation of the No Action Alternative would result in negligible, adverse impacts to
15 wetlands and the affected environment would remain in its present state.

16 **Alternative 1—Implement Force Reductions**

17 Per Section 4.17.1.2 of the 2013 PEA, there would be negligible changes to wetlands under
18 Alternative 1. The installation would continue to manage its wetlands in accordance with the
19 installation INRMP, which includes designating most wetland areas as off-limits. Impacts to
20 wetlands could conceivably occur if the further force reductions decreased environmental
21 staffing levels to a point where environmental compliance could not be properly implemented.
22 The Army is committed, however, to ensuring that personnel cuts will not result in non-
23 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
24 at Fort Riley, the Army would ensure that adequate staffing remains so that mandated
25 environmental requirements would continue to be met.

26 **4.20.10 Water Resources**

27 **4.20.10.1 Affected Environment**

28 The affected environment for water resources on Fort Riley remains the same as that described in
29 Section 4.17.8.1 of the 2013 PEA. There are no changes to surface water, water supply,
30 wastewater, and stormwater resources.

1 **4.20.10.2 Environmental Effects**

2 **No Action Alternative**

3 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
4 Alternative due to the disturbance and pollution, including sedimentation, of surface waters from
5 continuing training activities on Fort Riley. Surface water impacts to water resources under the
6 No Action Alternative would remain the same as described in the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 Beneficial impacts to water resources were anticipated from implementation of force reductions
9 under Alternative 1 in the 2013 PEA because of reduced demand for potable water supply.
10 Reduction in training area use from force reductions on Fort Riley is anticipated to potentially
11 reduce impacts to surface waters due to disturbance and spills and provide beneficial impacts.
12 The increased force reductions are expected to cause a proportionate reduction in wastewater
13 flows at the installation WWTP, and without necessary changes, this could result in discharges
14 exceeding permitted levels.

15 Adverse water resources impacts could conceivably occur if personnel cuts prevented
16 environmental compliance from being implemented. The Army is committed to ensuring that
17 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
18 end-strength reductions were to be realized at Fort Riley, the Army would ensure that adequate
19 staffing remains so that mandated environmental requirements would continue to be met and
20 implemented. Increased force reductions under Alternative 1 of this SPEA would continue to
21 have the same beneficial impacts to surface waters and water supplies but would not have the
22 adverse impacts anticipated for the WWTP.

23 **4.20.11 Facilities**

24 **4.20.11.1 Affected Environment**

25 The facilities affected environment of the Fort Riley installation remains the same as was
26 discussed in Section 4.17.9.1 of the 2013 PEA.

27 **4.20.11.2 Environmental Effects**

28 **No Action Alternative**

29 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
30 impacts to facilities at Fort Riley. The installation's current facility shortfalls have been
31 prioritized for programming and funding by the Army, however impacts to facilities would
32 remain the same as described in the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to
3 facilities would occur on Fort Riley. Under Alternative 1, implementation of proposed further
4 force reductions would also have overall minor, adverse impacts. Impacts would occur from the
5 fact that future, programmed construction or expansion projects may not occur or could become
6 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
7 may require modifications to existing facilities; and a greater number of buildings on the
8 installation may become vacant or underutilized due to reduced requirements for facilities, which
9 would have a negative impact on overall space utilization. Some beneficial impacts are also
10 expected as a result of force reductions such as reduced demands for utilities and reduced
11 demands for training facilities and support services. The force reductions would also provide the
12 installation the opportunity to reduce reliance on relocatable buildings. Some permanent facilities
13 may be re-designated to support units remaining at Fort Riley to provide more space and
14 facilities that are better able to meet tenant and Army needs. As discussed in Chapter 1, the
15 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
16 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
17 impacts from these activities are not analyzed.

18 **4.20.12 Socioeconomics**

19 **4.20.12.1 Affected Environment**

20 The ROI for Fort Riley is generally considered the geographic extent to which the majority of the
21 installation's Soldiers, Army civilians, contractor personnel, and their Families reside. The
22 installation is located in northeast Kansas on the Kansas River between Junction City and
23 Manhattan. The ROI includes Geary, Dickinson, Clay, and Riley counties.

24 This section provides a summary of demographic and economic characteristics within the ROI.
25 These indicators are described in greater detail in Section 4.17.10 of the 2013 PEA. However,
26 some demographic and economic indicators have been updated where more current data
27 are available.

28 **Population and Demographics**

29 Using 2011 as a baseline, Fort Riley has a total working population of 25,582 consisting of
30 active component Soldiers and Army civilians, and other military services personnel, contractors,
31 and civilians. Of the total working population, 19,995 were permanent party Soldiers and Army
32 civilians. The population that lives on Fort Riley consists of 9,579 Soldiers, 176 Army civilians
33 who are spouses of Soldiers, and an estimated 14,365 Family members, for a total on installation
34 resident population of 23,944 (Elstrom, 2014). The portion of Soldiers and Army civilians living
35 off the installation in 2011 was estimated to be 26,227 and consists of Soldiers, Army civilians,
36 and their Family members.

1 In 2012, the population in the ROI was 142,600, a 6.6 percent increase from 2010. Geary and
 2 Riley counties experienced the most significant growth of the counties during this time. These
 3 counties are also more racially diverse than the other counties within the ROI (U.S. Census
 4 Bureau, 2012a). The population in the ROI is presented in Table 4.20-2, and the 2012 racial and
 5 ethnic composition of the ROI is presented in Table 4.20-3.

6 **Table 4.20-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Clay County, Kansas	8,523	-0.1
Dickinson County, Kansas	19,806	+0.3
Geary County, Kansas	38,257	+11.3
Riley County, Kansas	76,030	+6.9

7 **Table 4.20-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Kansas	87.2	6.2	1.2	2.6	2.7	11.0	77.5
Clay County, Kansas	97.2	0.6	0.4	0.4	1.3	2.5	95.0
Dickinson County, Kansas	95.7	1.1	0.7	0.4	2.1	4.4	91.9
Geary County, Kansas	70.6	18.4	1.2	3.4	5.7	13.8	59.9
Riley County, Kansas	84.6	7.0	0.7	0.7	3.3	7.4	78.4

8 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

9 **Employment and Income**

10 Information presented below represents an update from the 2013 PEA, which provided
 11 employment and income data from 2009. Between 2000 and 2012, total employment in Geary
 12 and Riley counties grew at a faster rate than other counties in the ROI and Kansas as a whole
 13 (Table 4.20-4) (U.S. Census Bureau, 2000 and 2012b).

1 The median household income in the counties within the ROI is relatively similar to each other,
 2 all of which are lower than Kansas as a whole. The percentage of those living below the poverty
 3 line is greatest in Riley County (22.7 percent). Poverty rates in the other counties within the ROI
 4 are relatively similar to each other and Kansas (U.S. Census Bureau, 2012b).

5 At \$166,900, the median home value in Riley County is higher than other counties within the
 6 ROI. Clay County has a median home value notably lower than other counties in the ROI and
 7 Kansas as a whole (U.S. Census Bureau, 2012b).

8 **Table 4.20.4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Kansas	1,413,433	+6.2	127,400	51,273	13.2
Clay County, Kansas	4,193	-3.1	87,200	43,879	12.3
Dickinson County, Kansas	9,706	-0.6	106,400	49,535	11.4
Geary County, Kansas	16,723	+22.7	130,600	47,879	10.8
Riley County, Kansas	39,843	+12.1	166,900	43,364	22.7

9 Information regarding the workforce by industry for each county within the ROI was obtained
 10 from the U.S. Census Bureau. Information presented below is for the employed labor force.

11 ***Clay County, Kansas***

12 The educational services, and health care and social assistance sector accounts for the greatest
 13 share of the total workforce in Clay County (20 percent). Retail trade accounts for the second
 14 largest share of the total workforce (12 percent), followed by the construction and agriculture,
 15 forestry, fishing and hunting, and mining sectors (10 percent each). The Armed Forces account
 16 for 4 percent of Clay County’s total workforce. The nine remaining sectors account for 44
 17 percent of the total workforce.

18 ***Dickinson County, Kansas***

19 Similar to Clay County, the primary employment sector in Dickinson County is educational
 20 services, and health care and social assistance (22 percent). Retail trade is the second largest
 21 employment sector (13 percent), followed by manufacturing (12 percent). The Armed Forces
 22 account for 3 percent of the Dickson County workforce. The remaining 10 sectors, which each
 23 account for less than 10 percent individually, employ 50 percent of the total workforce.

1 **Geary County, Kansas**

2 The Armed Forces is the primary employment sector in Geary County (21 percent). The
3 educational services, and health care and social assistance sector is the second largest
4 employment sector (17 percent), followed by public administration (13 percent). Retail trade also
5 accounts for a notable share of the total workforce (10 percent). The 10 remaining sectors
6 account for 39 percent of the total workforce.

7 **Riley County, Kansas**

8 Similar to Clay and Dickinson counties, the educational services, and health care and social
9 assistance sector accounts for the greatest share of Riley County's total workforce (32 percent).
10 The Armed Forces is the second largest employment sector (16 percent), followed by the retail
11 trade and arts, entertainment, and recreation, and accommodation and food services sectors (10
12 percent each). The 10 remaining sectors account for 32 percent of the total workforce.

13 **Housing**

14 Installation housing is composed of Family quarters and barracks. Totaling more than 6.1 million
15 square feet, there are 4,020 Family units on the installation. Approximately 95.0 percent of the
16 installation's 6,213 barrack spaces meet the Army's highest standards. Currently, barrack spaces
17 have an occupancy rate of 83.6 percent (Fort Riley, 2013, 2014a).

18 **Schools**

19 Approximately 8,310 military-connected students attend schools throughout the region. This
20 represents 26.0 percent of enrollment in regional schools. The majority of military-connected
21 students attend schools in the Geary County School District (5,644 students). The district
22 received approximately \$13.9 million in Federal Impact Aid during the 2012–2013 academic
23 year (Fort Riley, 2013). The 2013 PEA reports that military-connected students who attend
24 schools in the Geary County School District represent approximately 62.0 percent of
25 total enrollment.

26 Another 1,334 military-connected students attended schools in the Manhattan-Ogden School
27 District, for which the district received approximately \$264,625 in Federal Impact Aid during the
28 2012-2013 academic year (Fort Riley, 2013). Military-connected students represent
29 approximately 25.0 percent of district enrollment, as presented in the 2013 PEA. The remaining
30 1,332 military-connected students attended schools in other districts. These districts received
31 approximately \$549,063 in Federal Impact Aid during the 2012-2013 academic year (Fort Riley,
32 2013). Together, these students represent 6 percent of enrollment in other districts, as presented
33 in the 2013 PEA.

1 **Public Health and Safety**

2 DES oversees the administration of police and fire protection services on the installation. A
3 range of medical services are also provided on the installation by the Irwin Army Community
4 Hospital. The hospital provides services for military personnel, retirees, and their Families.
5 Additional information regarding these facilities is provided in the 2013 PEA.

6 **Family Support Services**

7 The Fort Riley Directorate of FMWR and ACS provide programs, services, facilities, and
8 information for Soldiers and their Families. Services range from child care and youth programs
9 to deployment, employment, financial, and relocation readiness, among others. Additional
10 information about Family Support Services is provided in the 2013 PEA.

11 **Recreation Facilities**

12 The installation offers a range of recreation facilities and programs. These include but are not
13 limited to fitness centers, swimming pools, outdoor recreation opportunities, and a Warrior Zone.
14 Additional information about recreation facilities is provided in the 2013 PEA.

15 **4.20.12.2 Environmental Effects**

16 **No Action Alternative**

17 The continuation of operations at Fort Riley represents a beneficial source of regional economic
18 activity. No additional impacts to housing, public and social services, public schools, public
19 safety, or recreational activities are anticipated.

20 **Alternative 1—Implement Force Reductions**

21 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
22 significant impact to socioeconomic resources. The description of impacts to the various
23 components of socioeconomics are presented below.

24 ***Population and Economic Impacts***

25 Alternative 1 would result in the loss of up to 16,000²⁶ Army positions (15,357 Soldiers and 643
26 Army civilians), with an average annual income of \$46,760 and \$63,875, respectively. In
27 addition, this alternative would affect an estimated 24,288 Family members, including 8,928
28 spouses and 15,360 children. The total number of military employees and their Family members
29 who may be directly affected under Alternative 1 is projected to be 40,288.

²⁶ This number was derived by assuming the loss of two BCTs, 60 percent of Fort Riley's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 2 forecasted economic impact value falls outside the historical positive or negative range. Table
 3 4.20-5 shows the deviation from the historical average that would represent a significant change
 4 for each parameter. The last row summarizes the deviation from the historical average for the
 5 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 6 by the EIFS model. Based on the EIFS analysis, there would be significant impacts to sales,
 7 income, employment, and population because the estimated percentage change is outside the
 8 historical ranges for all these parameters.

9 **Table 4.20-5. Economic Impact Forecast System and Rational Threshold Value**
 10 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+8.2	+6.0	+7.8
Economic contraction significance value	-5.5	-4.5	-3.8	-2.9
Forecast value	-11.9	-14.4	-28.9	-30.5

11 Table 4.20-6 summarizes the predicted impacts to income, employment, and population of force
 12 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 13 percent change from the historical average, the percentages in the following table show the
 14 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 15 agreement with the EIFS forecasted values, these figures show the same significance
 16 determinations as the EIFS predictions in the previous table.

17 **Table 4.20-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$865,132,400	-17,780 (Direct)	40,288
		-1,854 (Induced)	
		-19,633 (Total)	
Total 2012 ROI economic estimates	\$6,016,300,000	70,465	142,616
Percent reduction of 2012 figures	-14.4	-27.9	-28.2

18 Note: Sales estimates are not consistently available from public sources for all counties in the United
 19 States; therefore, the sales data for counties are not presented in this table. The estimated
 20 reduction in total sales from EIFS is described in the paragraphs below.

21 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 22 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 23 cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and
 24 Army civilians under Alternative 1, EIFS estimates an additional 1,780 direct contract service
 25 jobs would also be lost. An additional 1,854 induced jobs would be lost because of the reduction

1 in demand for goods and services within the ROI. The total reduction in employment is
2 estimated to be 19,633, a significant reduction of 27.9 percent from the total employed labor
3 force in the ROI of 70,465. Income is estimated to fall by \$865.1 million, a significant 14.4
4 percent decrease in income from 2012.

5 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$786.6 million.
6 There would also be a loss in sales tax receipts to local and state governments. The average state
7 and local sales tax rate for Kansas is 8.2 percent (Tax Foundation, 2014). To estimate sales tax
8 reductions, information on the proportion of sales that would be subject to sales tax on average
9 across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent
10 of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and
11 applicable tax rate was applied to the estimated decrease in sales of \$786.6 million resulting in
12 an estimated sales tax receipts decrease of \$10.26 million under Alternative 1.

13 Of the 142,616 people (including those residing on Fort Riley) who live within the ROI, 16,000
14 Army employees and their estimated 24,288 Family members are predicted to no longer reside in
15 the area under Alternative 1, resulting in a significant population reduction of 28.2 percent. This
16 number could overstate potential population impacts because some of the people no longer
17 employed by the military could continue to live and work within the ROI, finding employment in
18 other industry sectors. However, due to the rural nature of the area and Fort Riley as a dominant
19 employer and economic driver of the ROI, the majority of displaced personnel would likely
20 move out of the area to seek other opportunities. There are few employing sectors in the ROI
21 able to absorb the number of displaced military employees expected under Alternative 1. A small
22 number of displaced personnel may stay in the ROI and seek and find work while others may
23 remain unemployed and possibly affect the unemployment rate in the ROI.

24 **Housing**

25 The population reduction that would result under Alternative 1 would decrease housing demand
26 and increase housing availability on the installation and across the larger ROI, potentially
27 resulting in a decrease in median home values. Because of the relatively small population of the
28 ROI, the reduced demand for housing and increased availability of housing associated with the
29 force reductions that would occur under Alternative 1 has the potential to result in minor to
30 significant impacts to the housing market.

31 **Schools**

32 During the 2012–2013 academic year, military-connected students accounted for approximately
33 26.0 percent of enrollment in regional schools (Fort Riley, 2013). The 5,644 military-connected
34 students who attend schools in the Geary County School District represent 62.0 percent of the
35 district's total enrollment, and subsequently these schools receive significant Federal Impact Aid
36 funds. Approximately 25.0 percent of the Manhattan-Ogden School District is comprised of
37 military-connected students (1,334 students). The remaining 1,332 military-connected students

1 account for a combined 6 percent of enrollment in other school districts across the region. In
2 total, school districts received \$13.9 million in Federal Impact Aid during the 2012/2013
3 academic year.

4 Under Alternative 1, it is possible that enrollment could decline significantly across several
5 school districts, particularly in Geary County. As described above, school districts within the
6 ROI receive sizable federal and DoD funds, the allocation of which is based on the number of
7 military-connected students they support. The actual projected loss of federal and DoD funds
8 cannot be determined at this time due to the variability of appropriated dollars from year to year,
9 and the uncertainty regarding the specific impacts to ROI school enrollment. However, it is
10 anticipated that schools across the ROI, particularly in Geary County, would likely need fewer
11 teachers and materials as enrollment declines, which would offset the reduction in Federal
12 Impact Aid.

13 Overall, schools within the ROI could experience significant, adverse impacts from the decline
14 in military-connected student enrollment, particularly in Geary County, that would result under
15 Alternative 1. If enrollment in individual schools declines significantly, schools may need to
16 reduce the number of teachers, administrators, and other staff, and potentially close or
17 consolidate with other schools within the same school district should enrollment fall below
18 sustainable levels.

19 **Public Services**

20 A reduction in personnel would have minor impacts to emergency services, fire, police, and
21 medical services because the reduction is anticipated to decrease the need for these services.
22 Adverse impacts to public services could conceivably occur if personnel cuts were to
23 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
24 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
25 any drawdown in military or civilian personnel, the Army is committed to meeting health and
26 safety requirements. The impacts to public services are not expected to be significant because the
27 existing service level for the installation and the ROI would still be available.

28 Off the installation, emergency service departments are comprised of both paid staff and
29 volunteers, some of whom may be Soldiers or Army civilians. Municipalities with high
30 concentrations of Soldiers and Army civilians may experience a greater loss of potential
31 volunteers and/or tax revenues to support paid positions than other municipalities, which may
32 reduce the ability to provide specific public services in localized areas. Mutual aid agreements
33 with adjacent municipalities and/or those not as significantly impacted may be able to help offset
34 the loss of existing/potential volunteers and/or tax revenue to support paid positions. Overall,
35 impacts to public services would be minor.

1 **Family Support Services and Recreation Facilities**

2 Under Alternative 1, Fort Riley would experience a significant population reduction. Family
3 Support Services and recreation facilities would experience reduced demand and use and
4 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
5 committed to meeting the needs of the remaining population on the installation. The extent of
6 these impacts would depend on the specific service(s) provided; however, many non-
7 appropriated business activities and recreation facilities/activities would experience the most
8 significant impacts. Overall, minor to significant impacts to Family Support Services and
9 recreation facilities would occur under Alternative 1.

10 **Environmental Justice and Protection of Children**

11 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
12 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
13 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
14 and adverse human health or environmental effects of its programs, policies, and activities on
15 minority and low-income populations” (EPA, 1994). As shown in Table 4.20-3, the proportion of
16 minority populations is notably higher in Geary County than the proportion in other counties
17 within the ROI and Kansas as a whole. Other counties within the ROI have fewer minority
18 residents than Kansas as a whole. Because minority populations are more heavily concentrated in
19 Geary County, Alternative 1 has the potential to affect environmental justice populations. Of the
20 counties within the ROI, only Riley County has a higher proportion of populations living below
21 the poverty level when compared to the Kansas average. Although these populations could be
22 adversely impacted under Alternative 1, the impacts are not likely to be disproportional.

23 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
24 federal agencies are required to identify and assess environmental health and safety risks that
25 may disproportionately affect children and to ensure that the activities they undertake do not
26 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
27 were to be realized, the Army is committed to implementing required environmental compliance
28 and meeting the health and safety needs of people associated with the installation, including
29 children. Therefore, it is not anticipated Alternative 1 would result in any environmental health
30 and safety risks to children within the ROI. Additionally, this analysis evaluates the effects
31 associated with workforce reductions only, and any subsequent actions on the installation that
32 may require ground-disturbing activities that have the potential to result in environmental health
33 and safety risks to children, such as demolishing vacant buildings, is beyond the scope of this
34 analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

1 **4.20.13 Energy Demand and Generation**

2 **4.20.13.1 Affected Environment**

3 The energy demand and generation affected environment of the Fort Riley installation remains
4 the same as described in Section 4.17.11.1 of the 2013 PEA.

5 **4.20.13.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
8 impacts to energy demand and generation at Fort Riley. For the current analysis, maintenance of
9 existing utility systems would continue and Fort Riley would continue to consume similar types
10 and amounts of energy so impacts to energy demand and generation would remain the same as
11 described in the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
14 demand and generation would occur on Fort Riley. Under Alternative 1, minor, beneficial
15 impacts to energy are anticipated due to a further reduction in energy consumption associated
16 with the additional force reductions. The installation would also be better positioned to meet
17 energy and sustainability goals.

18 **4.20.14 Land Use Conflicts and Compatibility**

19 **4.20.14.1 Affected Environment**

20 Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
21 Section 4.17.1.2, due to negligible impacts as a result of implementing alternatives included in
22 that analysis. As noted in the 2013 PEA, the installation has sufficient vacant space in existing
23 buildings, sufficient land available to build facilities, or a combination thereof, to meet the
24 mission requirements.

25 **4.20.14.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative, the 2013 PEA concluded that no changes to land use
28 conditions would occur, and negligible impacts are anticipated. Impacts under the No Action
29 Alternative on Fort Riley remain the same as those discussed in Section 4.17.1 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 The 2013 PEA concluded that the force reductions at Fort Riley would result in negligible
3 impacts to installation land use similar to the No Action Alternative. Under Alternative 1,
4 impacts would be similar to those described in the 2013 PEA.

5 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
6 land ordinances and regulations. Even if the full end-strength reductions were to be realized at
7 Fort Riley, the Army would ensure that adequate staffing remains so that the installation would
8 comply with all mandatory environmental regulations including land use ordinances
9 and regulations.

10 **4.20.15 Hazardous Materials and Hazardous Waste**

11 **4.20.15.1 Affected Environment**

12 As described in the 2013 PEA, hazardous materials are used on Fort Riley. Fort Riley operates
13 under a HWMP intended to promote the protection of public health and the environment. Army
14 policy is to substitute nontoxic and nonhazardous materials for toxic and hazardous ones; ensure
15 compliance with local, state, and federal hazardous waste requirements; and ensure the use of
16 waste management practices that comply with all applicable requirements pertaining to
17 generation, treatment, storage, disposal, and transportation of hazardous wastes. The plan
18 reduces the need for corrective action through controlled management of solid and hazardous
19 waste. No substantial changes have occurred to the affected environment since 2013.

20 **4.20.15.2 Environmental Effects**

21 **No Action Alternative**

22 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
23 Use of hazardous materials and generation of hazardous wastes would continue on Fort Riley in
24 accordance with all applicable laws, regulations and plans.

25 **Alternative 1—Implement Force Reductions**

26 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from
27 hazardous materials and hazardous waste would occur on Fort Riley. Alternative 1 in this SPEA
28 is not expected to involve major changes to the installation operations or types of activities
29 conducted on Fort Riley. Because of the reduced numbers of people, it is likely that the potential
30 for spills would be reduced further during training and maintenance activities. The volume of
31 waste generated and material requiring storage would increase slightly because deactivating units
32 would turn in hazardous material for storage to avoid transportation risks. Under Alternative 1 in
33 this SPEA, Fort Riley would continue to implement its hazardous waste management in
34 accordance with its HWMP and applicable regulations and therefore, adverse impacts would
35 be minor.

1 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
2 environmental compliance from being implemented. The Army is committed to ensuring that
3 personnel cuts will not result in non-compliance with regulations governing the handling,
4 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
5 Even if the full end-strength reductions were to be realized at Fort Riley, the Army would ensure
6 that adequate staffing remains so that the installation would comply with all mandatory
7 environmental regulations.

8 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
9 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
10 therefore, potential impacts from these activities are not analyzed.

11 **4.20.16 Traffic and Transportation**

12 **4.20.16.1 Affected Environment**

13 The transportation affected environment of the Fort Riley ROI remains the same as described in
14 Section 4.17.13.1 of the 2013 PEA with major road routes in the region including I-70, an east-
15 west interstate highway that passes less than 0.5 mile to the south of the cantonment area. Other
16 major routes in the area include U.S. Route 77, and Kansas State Routes 18, 57, and 82.

17 **4.20.16.2 Environmental Effects**

18 **No Action Alternative**

19 Under the No Action Alternative, the 2013 PEA anticipated negligible impacts. Fort Riley's
20 transportation system provides adequate LOS for its Soldiers, Family members, and civilians so
21 negligible impacts would continue to be anticipated.

22 **Alternative 1—Implement Force Reductions**

23 The 2013 PEA concluded that the force reductions at Fort Riley would result in beneficial
24 impacts to traffic and transportation systems. With the departure of Soldiers, Army civilians and
25 their Family members, a decrease in traffic congestion and travel time on installation and area
26 roads are anticipated. The size of the beneficial impact under Alternative 1 would be larger than
27 anticipated at the time of the 2013 PEA due to the larger force reduction.

28 **4.20.17 Cumulative Effects**

29 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
30 realignment at Fort Riley consist of four counties in Kansas: Geary, Dickinson, Clay, and Riley.
31 Section 4.17.14 of the 2013 PEA noted numerous planned or proposed actions within the ROI
32 that reasonably could be initiated within the next 5 years and would have the potential to
33 cumulatively add impacts to Alternative 1. A number of the Army's proposed projects have been

1 previously identified in the installation's Real Property Master Planning Board and are
2 programmed for future execution.

3 **Reasonably Foreseeable Future Projects on Fort Riley**

4 No additional actions have been identified by the installation beyond those noted in the
5 cumulative effects analysis of the 2013 PEA.

6 **Reasonably Foreseeable Future Projects outside Fort Riley**

7 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
8 future projects outside Fort Riley which would be appropriate for inclusion in the cumulative
9 impacts analysis. However, there are other projects and actions that affect regional economic
10 conditions and generally include construction and development activities, infrastructure
11 improvements, and business and government projects and activities. Additionally, smaller, less
12 diversified economies will be more vulnerable to force reductions and provide fewer
13 opportunities to displaced Army employees.

14 ***No Action Alternative***

15 There will be no cumulative effects due to the No Action Alternative, essentially the same as was
16 determined in the 2013 PEA. Current socioeconomic conditions would persist within the ROI,
17 and the No Action Alternative would not contribute to any changes.

18 ***Alternative 1—Implement Force Reductions***

19 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
20 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Riley is anticipated
21 to be significant and adverse for socioeconomics, with negligible to beneficial impacts for the
22 other resources.

23 The socioeconomic impact under Alternative 1, as described in Section 4.20.12.2 with a loss of
24 16,000 Soldiers and Army civilians, could lead to significant impacts to the population, regional
25 economy, schools, and housing, specifically in the ROI cities of Manhattan and Junction City in
26 Kansas. Fort Riley has long been a key component of the region's economy with total
27 installation employment of almost 20,000. The relatively smaller economy of the ROI depends
28 on the installation's employment and economic activity. Specifically, in Geary and Riley
29 counties, the Armed Forces account for 21 and 16 percent of the workforce, respectively,
30 demonstrating the importance of the installation to employment opportunities in the region. With
31 fewer opportunities for employment, the ROI would likely not be able absorb many of the
32 displaced forces.

33 Stationing changes would also affect regional economic conditions through the jobs and income
34 they bring (or lose) within the region. Military personnel spend their money in the ROI economy,
35 supporting additional jobs, income, taxes, and sales impacts. Other infrastructure improvements

1 and construction and development activity would also benefit the regional economy through
2 additional economic activity, jobs, and income in the ROI; however, these benefits would not
3 offset the adverse impacts under Alternative 1 and other adverse cumulative actions. Under
4 Alternative 1, the loss of 16,000 Soldiers, in conjunction with other reasonably foreseeable
5 actions, would have significant impacts to employment, income, tax receipts, housing values,
6 and schools in the ROI.

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1 **4.21 Fort Rucker, Alabama**

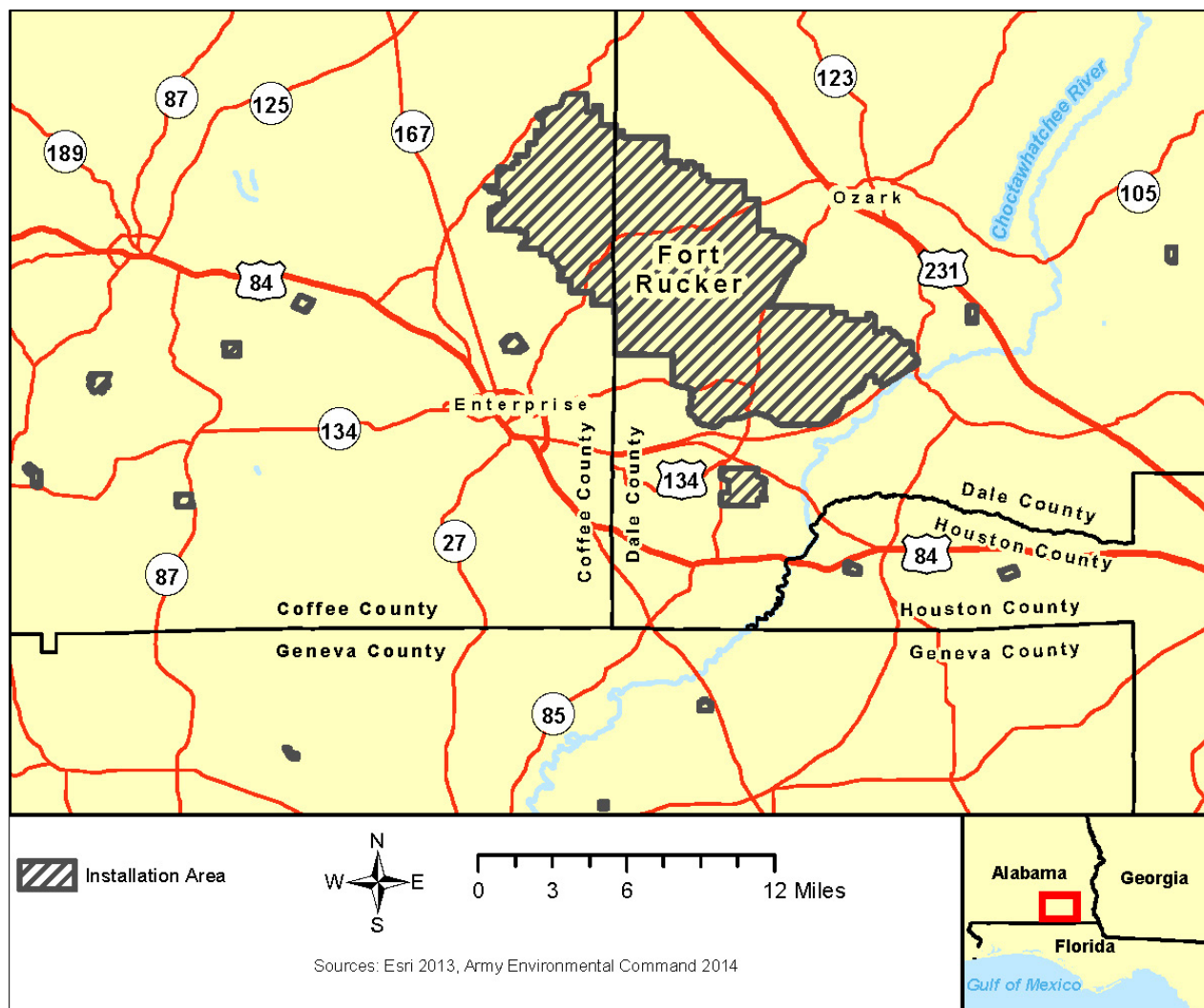
2 **4.21.1 Introduction**

3 Fort Rucker is located in southeastern Coffee and southwestern Dale counties, approximately 20
4 miles northwest of Dothan, Alabama, surrounded by the cities of Daleville, Enterprise, and
5 Ozark (Figure 4.21-1). The Fort Rucker reservation encompasses approximately 63,072 acres.
6 Fort Rucker serves as the headquarters for Army Aviation and is home to the U.S. Army
7 Aviation Center of Excellence (USAACE). The airspace used to accomplish the training mission
8 spans over 29,590 square miles in southeast Alabama, northwest Florida, and southwest Georgia.
9 An approximately 2,180-acre cantonment area is in the southern portion of Fort Rucker and
10 provides temporary and permanent living quarters for Soldiers and their Families. The
11 cantonment area includes residential areas, support facilities, retail centers, restaurants, and
12 health care facilities.

13 Fort Rucker was established in 1942 as a part of the U.S. War Department's base expansion
14 effort following the onset of World War II. Fort Rucker was situated on 58,000 acres of sub-
15 marginal farmland that the federal government was originally acquiring as a wildlife refuge.
16 South of Daleville, Alabama, an additional 1,259 acres were acquired for the construction of an
17 airfield to support the training camp. Troops were first stationed for training on Fort Rucker in
18 1943. The installation was primarily used for a variety of training activities and was used to
19 house foreign prisoners during World War II. Camp Rucker was inactive between 1946 and
20 1950, and again for a brief period in 1954.

21 The primary mission of USAACE, headquartered on Fort Rucker, is to train, educate and
22 develop Army aviation professionals and integrate Aviation capabilities across war fighting
23 functions in support of commanders and Soldiers on the ground. Five basefields, 17 stagefields,
24 and 73 government-owned remote training (landing) sites, on and off the installation, are used to
25 accomplish flight training.

26 Fort Rucker's 2013 baseline permanent party population was 4,957. In this SPEA, Alternative 1
27 assesses a potential population loss of 2,500, including approximately 1,754 permanent party
28 Soldiers and 736 Army civilians.



1

2 **Figure 4.21-1. Fort Rucker, Alabama**

3 **4.21.2 Valued Environmental Components**

4 For alternatives the Army is considering as part of its 2020 force structure realignment, no
5 significant, adverse environmental impacts are anticipated for Fort Rucker; however, significant
6 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
7 4.21-1 summarizes the anticipated impacts to VECs under each alternative.

1 **Table 4.21-1. Fort Rucker Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Negligible
Noise	Minor	Beneficial
Soils	Minor	Beneficial
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Less than Significant	Beneficial

2 **4.21.3 Air Quality**

3 **4.21.3.1 Affected Environment**

4 Fort Rucker is located in an area in attainment for all the criteria pollutants (EPA, 2013). Primary
 5 stationary air pollution sources at Fort Rucker include fossil fuel boilers and water heaters,
 6 woodworking shops, paint booths, incinerators, USTs and ASTs, and any other source that might
 7 release pollutants into the atmosphere. Other potential major sources of air pollutants are military
 8 equipment, aircraft and vehicles (Fort Rucker, 2008). Fort Rucker (facility number 604-0008)
 9 emissions are in compliance with the Title V Permit from the Alabama Department of
 10 Environmental Management (Alabama DEM, 2010). The current Title V permit expires on
 11 April 25, 2015.

12 **4.21.3.2 Environmental Effects**

13 **No Action Alternative**

14 Continuation of existing levels of emissions under the No Action Alternative would result in
 15 minor, adverse impacts to air quality. Emissions would remain at levels well below the
 16 maximum allowed under existing permits.

1 **Alternative 1—Implement Force Reductions**

2 Force reductions proposed at Fort Rucker under Alternative 1 would result in minor, long-term,
3 beneficial air quality impacts because of reduced demand for heating/hot water and reduced
4 operation of mobile sources to and from the facility. Additional beneficial impacts would occur
5 from the potential reduction in training flights, reducing emissions from aircraft. Emissions from
6 civilian aircraft are not expected to change.

7 The relocation of personnel outside of the area because of force reductions could result in
8 negligible, short-term impacts to air quality associated with mobile sources. As discussed in
9 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
10 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
11 therefore, potential impacts to air quality from these activities are not analyzed.

12 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
13 quality regulations. Even if the full end-strength reductions were to be realized at Fort Rucker,
14 the Army would ensure that adequate staffing remains so that the installation would comply with
15 all mandatory environmental regulations.

16 **4.21.4 Airspace**

17 **4.21.4.1 Affected Environment**

18 Airspace at Fort Rucker is highly regulated due to the high density of civilian airports adjacent to
19 Fort Rucker and its outlying aviation facilities. Twelve public use airports are located in the
20 seven-county southeast Alabama region. Fort Rucker uses many of these airports and others
21 outside the region. Caused by the high demand of airspace due to the volume of military training,
22 civilian air traffic may impact aircraft operations (e.g., approaches/departures and traffic
23 patterns). As a result, the entirety of Fort Rucker is considered an alert area A-211 to inform
24 pilots that airspace contains a high volume of pilot training or activity (FAA, 2012). In addition,
25 much of Fort Rucker lies within the Rose Hill MOA, in which airspace is restricted from 8,000
26 feet msl to 18,000 feet msl. Nearby restricted airspace includes Moody MOA to the east which
27 similarly restricts airspace from 8,000 feet msl to 18,000 feet msl and the Eglin C MOA which
28 restricts airspace from 1,000 feet msl to 3,000 feet msl (FAA VFRMAP, 2013).

29 Airspace at Fort Rucker is managed by USACE G3 Air. Currently, airspace interactions between
30 Fort Rucker and civilian air interests are healthy throughout the region. The Cairns Army Radar
31 Approach Control directs airspace throughout the area capably managing the high volume of air
32 traffic. Fort Rucker also provides technical assistance to many of the small airport operations
33 within the region (Fort Rucker, 2009a).

1 **4.21.4.2 Environmental Effects**

2 **No Action Alternative**

3 Fort Rucker would maintain existing airspace operations under the No Action Alternative. All
4 current airspace restrictions are sufficient to meet current airspace requirements and no airspace
5 conflicts are anticipated. There would be no impacts to airspace at Fort Rucker under the No
6 Action Alternative.

7 **Alternative 1—Implement Force Reductions**

8 Airspace restrictions and classifications around Fort Rucker are sufficient to meet current
9 airspace requirements and a force reduction, while potentially altering and reducing current
10 airspace use, would not be projected to require additional airspace restrictions. Negligible,
11 adverse impacts could occur in the event that force reductions impact aircraft and airspace
12 management personnel (i.e., air traffic controllers). In the event that aircraft and airspace
13 management personnel area are reduced, Fort Rucker would maintain staff levels to meet current
14 airspace requirements.

15 **4.21.5 Cultural Resources**

16 **4.21.5.1 Affected Environment**

17 The affected environment for cultural resources at Fort Rucker is the installation footprint. All of
18 Fort Rucker has been surveyed for archaeological resources with the exception of impact areas.
19 These areas have been excluded because of the presence of UXO and continued use of
20 explosives. A total of 315 sites have been identified within the installation and an additional 26
21 sites have been identified on leased lands in Alabama, Florida, and Georgia (Fort Rucker, 2010).
22 Of the 315 sites, 6 have been determined eligible for listing in the NRHP and 1 requires
23 additional research. Eight of the sites located on leased lands are considered potentially eligible.

24 Architectural surveys at the installation have identified and evaluated all architectural resources
25 constructed prior to 1965. All of the resources present at Fort Rucker date from World War II to
26 the Cold War Era. Of these resources, only one is eligible for listing on the NRHP, the Chapel of
27 Wings (Building 109) constructed in 1942. Although the building itself is identical to others
28 from the same period, the interior furnishings were constructed by German Prisoners of War
29 during World War II.

30 In addition to these resources, there are 5 cemeteries and 15 former church locations within the
31 installation. These are managed by the installation but are considered separate from
32 archaeological and architectural resources.

33 Fort Rucker has identified 21 federally recognized tribes with an interest in this area of Alabama.
34 The installation initiated consultation with these tribes in 2002 and will continue to work with

1 tribes that express an interest in the resources present at Fort Rucker. No TCPs or sacred areas
2 have been identified within the installation.

3 The ICRMP for USAACE and Fort Rucker Garrison was completed in 2010. The ICRMP
4 establishes the priorities and standards for the management of cultural resources at Fort Rucker
5 and outlines a 5-year schedule for accomplishing objectives.

6 **4.21.5.2 Environmental Effects**

7 **No Action Alternative**

8 Under the No Action Alternative, cultural resources would continue to be managed in adherence
9 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
10 installation would continue to consult with the SHPO and applicable tribes on the effects of
11 undertakings that may affect cultural resources. Activities with the potential to affect cultural
12 resources would continue to be monitored and regulated through the use of existing agreements
13 and/or preventative and minimization measures. The effects of the No Action Alternative would
14 be negligible as there are few archaeological sites and only one historic architectural resource
15 present on the installation. Existing protocols and procedures should prevent adverse impacts to
16 these resources.

17 **Alternative 1—Implement Force Reductions**

18 Alternative 1 would have a negligible impact on cultural resources. Currently, there is only one
19 historic architectural resource present on the installation that could be impacted in the future by
20 the force reductions proposed in this alternative. The effects of this alternative are considered to
21 be similar to the No Action Alternative –future activities with the potential to affect cultural
22 resources would continue to be monitored and the impacts reduced through preventative and
23 minimization measures. This alternative could result in some beneficial effects as a decrease in
24 training activities could reduce the potential for inadvertent disturbance of archaeological
25 resources. Additionally, with fewer people to support, there may be a reduction in the number of
26 undertakings with the potential to affect cultural resources.

27 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
28 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
29 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
30 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
31 necessary to vacate or demolish structures as a result of force reductions, the installation would
32 comply with applicable laws, such as NHPA, and conduct the necessary analyses and
33 consultation to avoid, minimize, and/or mitigate these effects.

34 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
35 cultural resources regulations. Even if the full end-strength reductions were to be realized at Fort

1 Rucker, the Army would ensure that adequate staffing remains so that the installation would
2 comply with all mandatory environmental regulations.

3 **4.21.6 Noise**

4 **4.21.6.1 Affected Environment**

5 Training and operational activities are the primary sources of noise at Fort Rucker. Training
6 typically occurs 24 hours per day. Operational noise on Fort Rucker is generated through small
7 arms fire, demolition and large caliber weapons, simulators, and rotary-wing (helicopter) aircraft
8 training. Helicopter flights are a major component of military training and operations, and
9 helicopter flight training represents the largest operational source of noise. Helicopter corridors
10 extend from airfields and heliports to training areas. Numerous rotary-wing aircraft are stationed
11 at Fort Rucker and are used extensively throughout the installation and adjacent areas. Heavy
12 weapons and small arms firing are conducted in the impact area on the northern portion of the
13 installation. Other noise sources include routine construction and demolition activities and
14 military and civilian motor vehicle operations (U.S. Army Public Health Command, 2011).

15 According to the Fort Rucker RPMP, land use patterns within the installation are such that
16 sensitive noise receptors like Family housing, community areas, and recreational uses are
17 generally well buffered from more intensive activities by open space (Fort Rucker, 2008).
18 Because of the nature of operations at Fort Rucker and the character of development in adjacent
19 communities, noise contours associated with aviation and weapons training extend into
20 surrounding areas not normally recommended for the siting of noise-sensitive land uses. Areas
21 within NZ II extend northeast, northwest, and southwest from Fort Rucker into the
22 unincorporated parts of Coffee and Dale counties. In Dale County, these areas are located along
23 County Road 36 and County Road 38. In Coffee County, these areas are along Alabama
24 Highway 27 (Ozark Highway), Alabama Highway 51, County Road 143, and east of County
25 Road 156. These areas are predominantly forested, but several single family residences along
26 with a few businesses and agricultural operations exist within the NZ II contours, especially
27 along Alabama Highway 51 (Fort Rucker, 2009a). There are two areas within the NZ III contour
28 for large-caliber weapons that extend outside Fort Rucker boundaries. One area is in an
29 unincorporated part of Coffee County, east of Alabama Highway 51 and northeast of Tabernacle
30 Stagefield. This area is mostly forested with an isolated residence. The other area is in an
31 unincorporated part Dale County southeast of Molinelli Forward Area Refueling Point with
32 primarily undeveloped forest land. All areas within the NZ III contour for small-caliber weapons
33 are located within the Fort Rucker boundaries (Fort Rucker, 2009a).

34 Fort Rucker receives a relatively small number of noise complaints annually, given the number
35 of aircraft movements and types of training activities. According to complaint records, the
36 majority of these complaints stem from aircraft operations occurring in the extensive Fort Rucker
37 airspace, as well as the air-to-ground weapons training at the Matteson, Kilo, and Golf run and

1 dive ranges (U.S. Army Public Health Command, 2011). The city of Enterprise and, to a lesser
2 extent, the city of Ozark are growing closer to areas affected by weapons training and there have
3 been many complaints in adjacent off-installation areas of these communities, especially along
4 Alabama Highway 27, generated by the effects of nightly weapons training (Fort Rucker, 2009a).
5 Each complaint is fielded by the Noise Mitigation Officer, USAACE G-3 Air, and is addressed
6 promptly. The aviation mission at Fort Rucker and its subsequent operations are not expected to
7 change in the near future (U.S. Army Public Health Command, 2011).

8 Fort Rucker implements an IONMP for current and future noise management. The IONMP
9 fosters communication between Fort Rucker and its civilian neighbors and provides a method for
10 responding to civilian issues related to noise generated by Fort Rucker training activities. Other
11 goals of the IONMP include education of both installation personnel and surrounding residents,
12 management of noise complaints, mitigation of noise and vibration, and noise abatement
13 procedures. Noise monitoring systems and data management are also included in the plan (U.S.
14 Army Public Health Command, 2011; USACE, 2013).

15 According to federal guidelines used to assess noise and land use compatibility, the overall
16 impact of Fort Rucker's current training activities would be characterized as moderate (U.S.
17 Army Public Health Command, 2011). The Zone III noise contours for small arms operations,
18 aircraft large caliber operations, and basefield/stagefield helicopter operations all remain
19 relatively localized to the installation and/or satellite facility boundary. Few, if any, sensitive
20 land uses are contained within the majority of the Zone III noise contours. The Zone II noise
21 contours for arms and aircraft operations routinely extend beyond the installation or satellite
22 facility boundary. In several instances, the Zone II contours contain noise sensitive land uses,
23 primarily which are low-density residential in nature (U.S. Army Public Health
24 Command, 2011).

25 **4.21.6.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative, units stationed at Fort Rucker would remain in place at
28 existing levels. There would be no change from existing operations and no changes in associated
29 noise levels. NZ II and III contours would continue to extend into areas outside the installation
30 containing noise-sensitive land uses. Because of the character of existing operations, existing
31 noise levels and contours, and frequency of complaints, less than significant noise (moderate,
32 adverse) impacts are anticipated to continue under the No Action Alternative.

33 **Alternative 1—Implement Force Reductions**

34 Under Alternative 1, it is anticipated that there would be a reduction in noise occurrences from
35 aircraft, which are the main contributor to installation noise complaints. There would likewise be
36 a reduction in other training exercises with reduction in forces. Fort Rucker would likely see the

1 current level of noise complaints remain the same or decrease, with the frequency of these
2 complaints decreasing. Overall, with implementation of Alternative 1, it is expected that noise
3 impacts would be reduced, resulting in beneficial impacts to noise. Given the character of
4 ongoing operations at Fort Rucker, however, no significant changes in noise levels or noise
5 contours are expected.

6 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
7 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
8 Fort Rucker, the Army would ensure that adequate staffing remains so that the installation would
9 comply with all mandatory environmental regulations including noise ordinances
10 and regulations.

11 **4.21.7 Soils**

12 **4.21.7.1 Affected Environment**

13 Fort Rucker lies within the Atlantic Coastal Plain Physiographic Province, characterized by low
14 hills, shallow valleys, and flat plains. Major portions of Fort Rucker are within the 100-year
15 floodplain (FEMA, 2007). Most slopes on the installation occur within the 0 to 10 percent range,
16 with few areas exceeding 5 percent (NRCS, 2013). The soils of the Atlantic Coastal Plain
17 Province on Fort Rucker are underlain by unconsolidated sediments such as clay, silt, and sand.

18 The predominant uplands soils on Fort Rucker are generally very deep, nearly level to gently
19 rolling, and moderately well drained to somewhat excessively well drained. Upland soils are
20 underlain by sandy, loamy, and fluvial marine deposits from sedimentary rock. Predominant
21 floodplain and swamp soils on Fort Rucker are generally deep to very deep, smooth and nearly
22 level, poorly to somewhat poorly drained, and underlain by loamy marine deposits from
23 sedimentary rocks. Predominant soil series on Fort Rucker include Angie, Cuthbert, Eustis,
24 Lakeland, Lucy, Luverne, Orangeburg, and Shubata (NRCS, 2013).

25 Soils on Fort Rucker have been physically affected by training activities (Fort Rucker, 2009b), as
26 well as from natural forces such as wind and water. Activities associated with training include
27 utilizing and maintaining range roads, operating tracked vehicles, and firing ordnances. The soils
28 on Fort Rucker are low to moderately erodible based on their high sand content and sparse
29 vegetative cover (NRCS, 2013); therefore, training activities can have a detrimental impact to
30 soils. Fort Rucker has implemented an erosion/sediment control project to minimize and mitigate
31 for impacts to soils on the installation (Fort Rucker, 2009b).

32 **4.21.7.2 Environmental Effects**

33 **No Action Alternative**

34 Under the No Action Alternative, minor, adverse impacts to soils are anticipated at Fort Rucker.
35 Although Fort Rucker would continue to maintain its erosion/sediment control projects, training

1 activities would occur under the current schedule which would lead to continued minor, adverse
2 impacts to soil resources.

3 **Alternative 1—Implement Force Reductions**

4 Under Alternative 1, beneficial impacts to soils are anticipated. Force reductions would likely
5 result in decreased use of the training ranges which could have beneficial impacts to soils
6 because there would be an anticipated decrease in soil compaction, and vegetation loss, and
7 accelerated erosion. Over time, less sediment would discharge in to waters and wetlands.

8 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
9 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
10 potential impacts from these activities on soils are not analyzed.

11 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
12 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
13 Rucker, the Army would ensure that adequate staffing remains so that the installation would
14 comply with all mandatory regulations.

15 **4.21.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 16 Species)**

17 **4.21.8.1 Affected Environment**

18 **Vegetation**

19 Five major habitat types occur on Fort Rucker: upland forested areas, pine plantations,
20 agricultural lands, developed areas, and lowland areas. Within these larger habitat types, some
21 areas are considered severely eroded (Fort Rucker, 2009b). The vegetation species common to
22 these habitat types are summarized below.

23 **Upland Forest**

24 Upland forested areas include mixed forests with both pine and hardwood species on moderately
25 well-drained, mesic sites where mesophytic species predominate. Such forests are abundant on
26 the installation in uplands with clay subsoils. They occur throughout the installation and are the
27 dominant community type on the western half of Fort Rucker. This type of forest has developed
28 naturally through regrowth on much of the formerly cultivated upland areas. On the tops of hills
29 and ridges where conditions are drier, the forest vegetation typically includes more xeric-adapted
30 dominant species and tends to be more open than the more widespread forest vegetation.

31 Pines in the overstory of these mixed pine-hardwood forests include loblolly, shortleaf (*Pinus*
32 *echinata*), and longleaf (*Pinus palustris*) in decreasing order of frequency. Common large
33 hardwood species include southern red oak (*Quercus falcata*), water oak (*Quercus nigra*),
34 diamond-leaf oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), and yellow poplar

1 (*Liriodendron tulipifera*). Post oak (*Quercus stellata*), black oak (*Quercus velutina*), and hickory
2 (*Carya* spp.) are less common. Southern magnolia (*Magnolia grandiflora*), American beech
3 (*Fagus grandifolia*), white oak (*Quercus alba*), and spruce pine (*Pinus glabra*) may occur on
4 flats on lower slopes. Predominant small trees include sassafras (*Sassafras albidum*), flowering
5 dogwood (*Cornus florida*), sourwood (*Oxydendron arboretum*), hawthorn (*Crataegus* spp.),
6 persimmon (*Diospyros virginiana*), and wild cherry (*Prunus serotina*). Blackjack oak (*Quercus*
7 *marilandica*), fringe tree (*Chionanthus virginicus*), eastern red cedar (*Juniperus virginiana*),
8 yaupon holly (*Ilex vomitoria*), and devilwood (*Osmanthus americana*) may also occur. American
9 holly (*Ilex opaca*) is scarce.

10 Shrub understory plants are mostly members of the blueberry/huckleberry complex (*Vaccinium*
11 spp.), wax myrtle (*Myrica cerifera*), and occasionally, piedmont azalea (*Rhododendron*
12 *canescens*) and red buckeye (*Aesculus pavia*), along with small individuals of the overstory
13 species described above. Blackberry (*Rubus* spp.) and wild plum (*Prunus americana*) may be
14 common in forest openings. Ground cover includes a wide variety of grasses and forbs, including
15 numerous species of legumes, but no particular species are especially characteristic of this
16 habitat type (Fort Rucker, 2009b).

17 **Pine Plantations**

18 Even-aged pine plantations are common on Fort Rucker. Most are comparatively small,
19 encompassing 25 acres or less. Loblolly pine has been planted on most sites having heavy soils
20 and mesic conditions. Younger stands planted on lighter, more xeric soils within recent years
21 consist of longleaf pine. In younger plantations, old field plant species are typically present.
22 These include blackberry, wild plum, and numerous grasses and forbs (Fort Rucker, 2009b).

23 **Agricultural Lands**

24 Fort Rucker has substantial cleared acreage devoted to agricultural production through an
25 outlease program. Typically, agricultural lands are planted with grain, legumes, or grass, or are
26 intentionally fallow. Early successional woody invaders of abandoned fields are determined by
27 nearby species of seed trees and seed dispersal capability. In most cases, loblolly pine and/or
28 sweetgum are the dominant invaders. Oaks (especially water oak), flowering dogwood, and
29 yellow poplar are common in marginal areas adjacent to forests with mature trees. Sassafras and
30 persimmon also are common woody invaders. Blackberries are common around field edges.
31 Among the most conspicuous, persistent, herbaceous invaders of interiors of abandoned fields
32 are broomsedge (*Andropogon virginicus*) and goldenrod (*Solidago* spp.) (Fort Rucker, 2009b).

33 **Developed Areas**

34 Developed areas include residential properties, golf courses, and similar open areas. These areas
35 cover approximately 5,000 acres and include a mix of ornamental grasses, shrubs, and trees
36 (Fort Rucker, 2009b).

1 **Lowland Areas**

2 Lowland areas include floodplain forests, wetlands, ponds, and lakes. Floodplain forests occur
3 along larger streams on Fort Rucker, such as Claybank and Steep Head creeks. Deciduous
4 hardwood species such as green ash (*Fraxinus pennsylvanica*), tupelo gum (*Nyssa aquatic*), red
5 maple (*Acer rubrum*), and river birch (*Betula nigra*) typically dominate. Coniferous trees
6 common in this type of forest include spruce pine and bald cypress (*Taxodium distichum*).
7 Characteristic shrubs and herbs include palmetto (*Sabal minor*), Sebastian bush (*Ditrysinia*
8 *fruticosa*), mountain laurel (*Kalmia latifolia*), Atamasco lily (*Zephyranthes atamasco*), spider
9 lily (*Hymenocallis occidentalis*), and partridge berry (*Mitchella repens*).

10 Wetland vegetation varies by wetland type. Bay swamps contain thick evergreen forests
11 dominated by sweet bay (*Magnolia virginiana*), with tupelo gum and yellow poplar also present.
12 Common shrubs and vines include white titi (*Cyrilla racemiflora*), sweet pepper bush (*Clethra*
13 *alnifolia*), gallberry (*Ilex glabra*), and Jackson brier (*Smilax* spp.). Characteristic herbs of this
14 habitat include golden club (*Orontium aquaticum*), green arum (*Peltandra virginica*), and
15 reinorchid (*Platanthera clavellata*). Bogs and wet meadows typically are dominated by various
16 grasses and sedges, but some bogs are dominated by woody vegetation. Characteristic plant
17 species in these habitats include white titi, wax myrtle, gallberry, yellow poplar, alder (*Alnus*
18 *serrulata*), and blueberries. Various grasses, sedges, and rushes are common, as well as yellow-
19 eyed grass (*Xris* spp.), meadow beauty (*Rhexia* spp.), rattlebox (*Crotalaria* spp.), St. John's wort
20 (*Hypericum* spp.), pipewort (*Eriocaulon* spp.), sundew (*Drosera* spp.), lobelia (*Lobelia* spp.),
21 narrow-leafed sunflower (*Helianthus angustifolius*), and clubmosses (*Lycopodium* spp.).
22 Sphagnum moss (*Sphagnum* spp.) also is often abundant in these habitats.

23 Seeps and intermittent streams may contain plants such as mosses and liverworts. Perennial
24 streams are often vegetated with green arum, golden club, yelloweyed grass, duck potato
25 (*Sagittaria* spp.), and alder. Beaver ponds and other small ponds often support abundant floating,
26 rooted-floating, and emergent aquatic vegetation (Fort Rucker, 2009b).

27 **Wildlife**

28 Fort Rucker has a rich and diverse fauna. Some common species that may occur in an upland
29 forests include eastern chipmunk, eastern cottontail rabbit, cotton mouse (*Peromyscus*
30 *gossypinus*), Virginia opossum (*Didelphis marsupialis*), eastern garter snake, and southern
31 leopard frog, as well as a variety of songbirds such as blue jay (*Cyanocitta cristata*) and northern
32 cardinal (*Cardinalis cardinalis*). Natural animal communities in the area have been affected by
33 urbanization. Two large mammals present at the time of settlement, the panther (*Puma concolor*
34 *coryi*) and black bear (*Ursus americanus*), have been extirpated from the area. White-tailed deer,
35 wild turkey, and the introduced feral hog (*Sus scrofa*) are common, as are many smaller
36 mammals that have been relatively undisturbed by urbanization.

1 **Threatened and Endangered Species**

2 The Choctaw bean (*Villosa choctawensis*) and fuzzy pigtoe (*Pleurobema strodeanum*) have been
 3 recorded on Fort Rucker, in recent surveys. While the other bivalve species have the potential to
 4 occur on Fort Rucker they have not been found in recent surveys. No portion of Fort Rucker has
 5 been designated as critical habitat for these species (Fort Rucker, 2013).

6 The American alligator (*Alligator mississippiensis*), which is listed as threatened only due to its
 7 similarity in appearance to the endangered American crocodile (*Crocodylus acutus*), also has
 8 been recorded on Fort Rucker. The wood stork (*Mycteria americana*) could occur on Fort
 9 Rucker. Though not recorded, it is possible that the eastern indigo snake (*Drymarchon corais*
 10 *couperi*) and RCW could occur on Fort Rucker. The eastern population of the gopher tortoise
 11 (*Gopherus polyphemus*) is a candidate species for federal listing.

12 Table 4.21-2 shows federally listed threatened or endangered species that could occur at Fort
 13 Rucker.

14 **Table 4.21-2. Federally Listed Species with the potential to occur on Fort Rucker**

Scientific Name	Common Name	Federal Status
Reptiles		
<i>Alligator mississippiensis</i>	American alligator	Threatened
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	Threatened
Bivalves		
<i>Fusconaia burkei</i>	Tapered pigtoe	Threatened
<i>Fusconaia Escambia</i>	Narrow pigtoe	Threatened
<i>Fusconaia rotulata</i>	Round ebonyshell	Endangered
<i>Hamiota australis</i>	Southern sandshell	Endangered
<i>Margaritifera marrianae</i>	Alabama pearlshell	Endangered
<i>Pleurobema strodeanum</i>	Fuzzy pigtoe	Threatened
<i>Ptychobranhus jonesi</i>	Southern kidneyshell	Endangered
<i>Villosa choctawensis</i>	Choctaw bean	Endangered
Birds		
<i>Mycteria Americana</i>	Wood Stork	Endangered
<i>Picooides borealis</i>	Red-cockaded woodpecker	Endangered

15 State-protected species that have confirmed populations, or have been sighted on the installation,
 16 are the gopher tortoise, osprey (*Pandion haliaetus*), bald eagle, common ground dove
 17 (*Columbina passerine*), Cooper’s hawk (*Accipiter cooperi*), Choctaw bean, Eastern coachwhip
 18 (*Masticophis flagellum flagellum*), and southeastern pocket gopher (*Geomys pinetis*). There is a

1 historical record of the Florida pine snake (*Heterodon simus*) occurring on Fort Rucker. Though
2 not recorded, it is likely that the Alligator snapping turtle (*Macrolemys temmincki*), wood stork,
3 Southeastern myotis, and Rafinesque's big-eared bat occur on Fort Rucker (Fort Rucker, 2009b).

4 No plant species listed as endangered or threatened by USFWS are currently known to occur on
5 Fort Rucker based an onsite flora survey conducted by Mount and Diamond (1992), although
6 18 federally listed species are known to exist in the state of Alabama. Several former federal
7 Category 2 species, the incised groovebur (*Agrimonia incisa*), Flyr's nemesis (*Brickellia*
8 *cordifolia*), Baltzell's sedge (*Carex baltzellii*), and Alabama anglepod (*Matelea alabamensis*),
9 may occur on Fort Rucker but have not been confirmed. The state of Alabama has no official list
10 of threatened or endangered plants.

11 **4.21.8.2 Environmental Effects**

12 **No Action Alternative**

13 Implementation of the No Action Alternative would result in no significant impacts to biological
14 resources, and the affected environment would remain in its current state. Management of
15 biological resources on Fort Rucker would continue as outlined in the current INRMP (Fort
16 Rucker, 2009b).

17 **Alternative 1—Implement Force Reductions**

18 The Army anticipates that the reduction of installation personnel outlined in Alternative 1 could
19 result in beneficial impacts to biological resources and habitat. Implementation of Alternative 1
20 would result in reduction of training activities potentially allowing land currently used for
21 training exercises to transition into viable habitat with reduced frequency of disturbances. The
22 Army is committed to ensuring that personnel cuts will not result in non-compliance with natural
23 resources regulations. Even if the full end-strength reductions were to be realized at Fort Rucker,
24 the Army would ensure that adequate staffing remains so that the installation would comply with
25 all mandatory environmental regulations.

26 **4.21.9 Wetlands**

27 **4.21.9.1 Affected Environment**

28 A review of NWI maps identified approximately 3,588 acres of palustrine, lacustrine, and
29 riverine wetlands within the Fort Rucker (USFWS, 2010). NWI mapping is an educated
30 delineation based upon interpreting USGS topographic data, the USGS National Hydrography
31 Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation
32 was performed.

33 The majority of the wetlands identified through NWI were palustrine forested wetlands;
34 however, palustrine scrub-shrub, palustrine emergent, palustrine open water, and riverine

1 wetlands were also identified (USFWS, 2010). After forested wetlands, Lake Tholocco, a 655-
 2 acre mostly recreational lake in the east-central portion of the installation is the next largest
 3 wetland area. Table 4.21-3 identifies the acres of each wetland type on Fort Rucker.

4 **Table 4.21-3. Acres of Wetland Types on Fort Rucker**

Wetland Type	Acres
Palustrine forested	2,497
Palustrine scrub-shrub	293
Palustrine emergent	30
Palustrine open water	74
Lacustrine	656
Riverine lower perennial	38
Total acres	3,588

5 Source: USFWS (2010)

6 **4.21.9.2 Environmental Effects**

7 **No Action Alternative**

8 Minor, adverse impacts to wetlands at Fort Rucker are anticipated under the No Action
 9 Alternative. Training activities on the ranges and air fields would continue to occur under current
 10 schedules and impacts to wetlands from these activities would continue. Current management of
 11 wetlands to minimize impacts to wetlands would also continue under the No Action Alternative.

12 **Alternative 1—Implement Force Reductions**

13 Beneficial impacts to wetlands are anticipated from the implementation of Alternative 1. A force
 14 reduction at Fort Rucker would mean that airfields and training ranges would be less used. As a
 15 result, there would be less sedimentation from runoff entering wetland areas, fewer instances of
 16 vegetation becoming denuded, and wetland functions and values would remain intact. Adverse
 17 impacts to wetlands could conceivably occur if force reductions decreased environmental
 18 staffing levels to a point where environmental compliance could not be properly implemented.
 19 The Army is committed, however, to ensuring that personnel cuts will not result in non-
 20 compliance with wetland regulations. Even if the full end-strength reductions were to be realized
 21 at Fort Rucker, the Army would ensure that adequate staffing remains so mandated
 22 environmental requirements would continue to be met.

1 **4.21.10 Water Resources**

2 **4.21.10.1 Affected Environment**

3 **Surface Water/Watersheds**

4 The rivers, streams, lakes, and ponds within the Fort Rucker boundaries are part of the
5 Choctawhatchee River Basin (USACE, 2013). Flowing southwest, the Choctawhatchee River
6 passes the installation boundary on the southeast and the Pea River, a Choctawhatchee River
7 tributary, passes the installation on the northwest (Fort Rucker, 2009b, as cited by USACE,
8 2013). Several tributaries feed the Choctawhatchee River in the southeastern portion of Fort
9 Rucker. Claybank Creek, another Choctawhatchee River tributary, flows through the center of
10 the installation in a southerly direction from its headwaters to the north of the installation.
11 Eighty-two percent of the surface area of Fort Rucker drains to Claybank Creek and its
12 tributaries (USACE, 2013). Specifically, the Blacks Mill Creek and Bowles Creek/Steep Head
13 Creek tributaries receive drainage from the northwestern part of the installation (Fort Rucker,
14 2009b, as cited by USACE, 2013).

15 Surface water quality characteristics observed in the vicinity of Fort Rucker include moderate
16 turbidity and hardness for the Choctawhatchee River and tributaries (USACE, 2013). Except for
17 high iron concentrations, Clean Water Act ambient water quality criteria are met (USACE,
18 2013). Claybank Creek and Choctawhatchee River are classified as “Fish and Wildlife” waters,
19 meaning they are suitable for fish, aquatic life, and wildlife propagation (Alabama DEM, 2012).

20 **Groundwater**

21 Fort Rucker, within the Southeastern Coastal Plain, is underlain by several aquifers in addition to
22 being connected hydraulically to the Floridian aquifer system (Fort Rucker, 2009b, as cited by
23 USACE, 2013). The aquifers immediately under the installation are the Lisbon and Tuscahoma
24 Formation aquifers. The Lisbon aquifer extends 10 to 140 feet deep and has surface extents in
25 the uplands present in the northwestern portion of the installation. The Tuscahoma aquifer has
26 surficial extents in the northern portion of the installation in addition to the low areas associated
27 with the Claybank, Steep Head, and Bowles creeks. The hydrologically connected Nanafalia and
28 Clayton Formation aquifers are beneath the Lisbon and Tuscahoma Formations and are
29 characterized by thicknesses of 400 to 500 feet (USACE, 2013). Even though these aquifers are
30 not present in the surface layers within installation boundaries, they are the main groundwater
31 sources for the installation (USACE, 2013; Fort Rucker, 2009b, as cited by USACE, 2013).
32 Groundwater withdrawal has resulted in cones of depression at pumping sites in addition to a 50
33 to 60 foot decrease in the aquifer water level at Fort Rucker (USACE, 2013). The groundwater in
34 these aquifers flows to the south.

1 **Water Supply**

2 American Water Enterprises, Inc., a private company, operates and maintains the drinking water
3 system on Fort Rucker (U.S. Army, 2014a). Fort Rucker uses groundwater drawn from the
4 Nanafalia and Clayton aquifers as its main potable water source (USACE, 2013). A collection of
5 seven wells serves as the source of water for the cantonment and several heliport areas. Separate
6 wells provide water for non-potable uses such as fire suppression, training, and recreation. The
7 Cairns AAF and the Shell AHP receive water supplies through the cities of Daleville and
8 Enterprise, respectively (U.S. Army, 2014a).

9 Water treatment consists of a chlorine disinfection process. Except for exceedances of
10 manganese and iron, primary and secondary drinking water parameters achieve state standards
11 (USACE, 2013). Fort Rucker instituted a Source Water Assessment Program to protect drinking
12 water wells and their supply (U.S. Army, 2014a). Protection measures included identification of
13 contaminant sources, source risks, contaminant mapping, and public education.

14 **Wastewater**

15 Fort Rucker has several NPDES permits for compliance and control of wastewater (EPA, 2014).
16 In 2003, the wastewater system on Fort Rucker was contracted to American Water Enterprises,
17 Inc. for 50 years (Fort Rucker, 2008, as cited by USACE, 2013). WWTPs located on the
18 installation service the Main Post and Cairns AAF whereas wastewater from Shell AHP is
19 transferred to and treated at a WWTP in the city of Enterprise (U.S. Army, 2014b; EPA, 2014).

20 **Stormwater**

21 Within developed zones of the installation, such as the cantonment area, the goal of the
22 stormwater management system is to direct the runoff away from use areas, facilities, and
23 infrastructure. In addition to natural drainage ways, the stormwater collection system in these
24 areas consists of storm drains, roadside ditches, culverts, and swales. Surface runoff is channeled
25 to either infiltration or detention systems. Oil/water separators are installed to prevent pollutants
26 from aircraft and vehicle wash areas from draining to surface waters (Fort Rucker, 2008, as cited
27 by USACE, 2013).

28 Stormwater runoff from construction activity disturbing a land area equal to or greater than
29 1 acre requires an NPDES permit through the Alabama Department of Environmental
30 Management. Additionally, these construction sites must adhere to guidelines and implement
31 appropriate BMPs detailed in the *Alabama Handbook for Erosion Control, Sediment Control and*
32 *Stormwater Management on Construction Sites and Urban Areas* (Fort Rucker, 2009b, as cited
33 by USACE, 2013). Fort Rucker has an NPDES Phase I permit (No. AL0002178) for stormwater
34 inlets/outfalls (USACE, 2013).

1 **Floodplains**

2 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
3 and any adverse impacts from the use or modification of floodplains when there is a feasible
4 alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the
5 risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to
6 restore and preserve the natural and beneficial values served by floodplains in carrying out its
7 responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance
8 of being equaled or exceeded in any year. Specific areas designated as 100-year floodplains
9 include areas adjacent to Bowles Creek and its tributaries in the northwestern portion of Fort
10 Rucker (Fort Rucker, 2009b, as cited by USACE, 2013).

11 **4.21.10.2 Environmental Effects**

12 **No Action Alternative**

13 Minor, adverse impacts to water resources are anticipated from the No Action Alternative.
14 Ongoing groundwater pumping for water supplies would continue to decrease aquifer levels and
15 lead to cones of depression. Fort Rucker would continue to meet federal and state water quality
16 criteria, drinking water standards, and floodplain management requirements. Stormwater
17 management would continue under the existing NPDES Phase I permit as would adherence to
18 state stormwater requirements and BMP guidelines, especially for construction sites. Current
19 water resources management and compliance activities would continue to occur under
20 this alternative.

21 **Alternative 1—Implement Force Reductions**

22 Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A
23 reduction in personnel would decrease demand for potable water and would reduce groundwater
24 withdrawals. Reduced use of aircraft and other vehicles would lead to less frequent washings and
25 decreased potential for pollutant discharge as well as provide more non-potable water for other
26 uses. Implementation would lead to additional wastewater treatment capacity for other uses.
27 Adverse water resources impacts could conceivably occur if personnel cuts prevented
28 environmental compliance from being implemented. The Army is committed to ensuring that
29 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
30 end-strength reductions were to be realized at Fort Rucker, the Army would ensure that adequate
31 staffing remains so that mandated environmental requirements would continue to be met and
32 implemented. Force reduction at Fort Rucker is not anticipated to cause violations of federal and
33 state water quality regulations and discharge permits.

1 **4.21.11 Facilities**

2 **4.21.11.1 Affected Environment**

3 Fort Rucker supports upwards of 36 organizations that are multi-command, multi-service, and
4 multi-missioned. To carry out its missions, Fort Rucker supports a daytime population of
5 approximately 15,700 personnel including over 5,000 people in uniform, over 7,000 civilian and
6 contract employees and more than 3,700 Family members on the installation
7 (U.S. Army, 2014c).

8 The cantonment area is located in the southern portion of Fort Rucker and spans approximately
9 2,800 acres. Supporting facilities include residential housing, retail centers, restaurants, health
10 care facilities, fitness center, athletic fields and other recreational facilities (Fort Rucker, 2008).

11 Fort Rucker's training area, airspace and land availability encompass 27 counties in 3 states.
12 Flight training is spread across 5 basefields, 1 forward arming fuel point, 17 stagefields, and
13 73 remote training sites (U.S. Army, 2014c).

14 **4.21.11.2 Environmental Effects**

15 **No Action Alternative**

16 No impacts are anticipated under the No Action Alternative. Fort Rucker would continue to use
17 its existing facilities to support its tenants and missions.

18 **Alternative 1—Implement Force Reductions**

19 Under Alternative 1, implementation of the proposed force reductions would result in overall
20 minor, adverse impacts. Impacts would occur from the fact that future, programmed construction
21 or expansion projects may not occur or could be downscoped; moving occupants of older,
22 underutilized, or excess facilities into newer facilities may require modifications to existing
23 facilities; and a greater number of buildings on the installation may become vacant or
24 underutilized due to reduced requirements for facilities, which would have a negative impact on
25 overall space utilization. Additionally, force reductions could require the storage of aircraft not
26 being utilized for training due to reduced training schedules. Adverse impacts could occur if
27 sufficient space is not available. The existing aircraft storage space and utilization would need to
28 be evaluated. Some beneficial impacts are also expected as a result of force reductions as a
29 reduction in the frequency of training exercises would be beneficial for maintaining ranges and
30 training areas, improving sustainability of those facilities. A decrease in training operational
31 tempo and related heavy equipment use would be beneficial for the maintenance and
32 sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the
33 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
34 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
35 impacts from these activities are not analyzed.

1 **4.21.12 Socioeconomics**

2 **4.21.12.1 Affected Environment**

3 Fort Rucker, located in Dale County, Alabama, comprises approximately 63,072 acres. The ROI
 4 includes counties that are generally considered the geographic extent to which the majority of the
 5 installation’s Soldiers, Army civilians, and contractor personnel and their Families reside. The
 6 ROI consists of Coffee, Dale, and Houston counties in Alabama. This section provides a
 7 summary of demographic and economic characteristics within the ROI.

8 **Population and Demographics**

9 Using 2013 as a baseline, Fort Rucker has a total working population of 15,944, consisting of
 10 permanent party Soldiers, Army civilians, students and trainees, other military services
 11 personnel, contractor personnel, and other civilians. Of the total working population, 4,957 were
 12 active component Soldiers and Army civilians. The population that lives on Fort Rucker consists
 13 of 1,474 Soldiers and 2,238 Family members, for a total on-installation resident population of
 14 3,712. The portion of the Soldiers, Army civilians, and Family members living off the
 15 installation is estimated to be 8,770.

16 Fort Rucker is home to USAACE and provides all Army aviation flight training, as well as
 17 training helicopter pilots for other armed forces branches and for students from more than 60
 18 foreign countries. Students are based at Fort Rucker for the expected length of their assigned
 19 curriculum which may range from a few weeks to over a year (Rohrs, 2014). Fort Rucker
 20 averages 3,000 students assigned for training and can accommodate most of these students on the
 21 installation. However, students may need to stay in local hotels during times when numerous
 22 training sessions overlap.

23 In 2012, the population of the ROI was 204,922. Compared to 2010, the 2012 population
 24 increased in all of the ROI counties, with the largest increase in Coffee County (Table 4.21-4).
 25 The racial and ethnic composition of the ROI is presented in Table 4.21-5 (U.S. Census
 26 Bureau, 2012a).

27 **Table 4.21-4. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Coffee County, Alabama	51,276	+2.7
Dale County, Alabama	50,348	+0.2
Houston County, Alabama	103,298	+1.7

1 **Table 4.21-5. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, not Hispanic or Latino (percent)
State of Alabama	70.0	26.5	0.7	1.5	4.1	1.2	66.6
Coffee County, Alabama	76.8	17.5	1.4	1.4	2.5	6.4	71.8
Dale County, Alabama	75.2	19.8	0.8	1.2	2.8	5.81.2	70.6
Houston County, Alabama	70.4	26.4	0.5	0.9	1.7	3.2	67.8

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 In 2012, the total employed labor force in the ROI was 88,214, including people employed
 5 through the Armed Forces (U.S. Census, 2012b). Between 2000 and 2012, total employed labor
 6 force (including Soldiers and Army civilians) increased in the state of Alabama and all of the
 7 counties in Fort Rucker’s ROI, with the largest increases in Coffee and Houston counties (Table
 8 4.21-6) (U.S. Census Bureau, 2000 and 2012b). Employment, median home value, household
 9 income, and poverty levels are presented in Table 4.21-6.

10 **Table 4.21-6. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alabama	2,034,230	+5.2	122,300	43,160	18.1
Coffee County, Alabama	21,197	+10.2	126,400	44,626	17.1
Dale County, Alabama	22,375	+2.9	96,100	45,247	16.0
Houston County, Alabama	44,642	+10.2	122,000	41,828	17.7

11 Information regarding the workforce by industry for each county within the ROI was obtained
 12 from the U.S. Census Bureau. Information presented below is for the employed labor force.

1 **Coffee County, Alabama**

2 According to the U.S. Census Bureau, the educational services, and health care and social
3 assistance sector accounts for the greatest share of total workforce in Coffee County (22
4 percent). Retail trade is the second largest employment sector (15 percent) followed by the
5 manufacturing sector (11 percent). The Armed Forces account for 5 percent of the county's
6 workforce. The remaining 10 industries employ 52 percent of the workforce.

7 Major employers in Coffee County include Army Fleet Support, Wayne Farms, Enterprise City
8 School System, and Pilgrim's Pride (Economic Development Partnership of Alabama, 2012).

9 **Dale County, Alabama**

10 According to the U.S. Census Bureau, the educational services, and health care and social
11 assistance sector accounts for the greatest share of total workforce in Dale County (19 percent).
12 Transportation, warehousing, and utilities industry is the second largest employment sector (12
13 percent), followed by retail trade (11 percent). The Armed Forces account for 6 percent of the
14 county's workforce. The remaining 10 industries employ 58 percent of the workforce.

15 Major employers in Dale County include Fort Rucker, Army Fleet Support, Michelin North
16 America, Inc., and Dale Medical Center (Economic Development Partnership of
17 Alabama, 2012).

18 **Houston County, Alabama**

19 According to the U.S. Census Bureau, the educational services, and health care and social
20 assistance sector accounts for the greatest share of total workforce in Houston County (23
21 percent). Retail trade is the second largest employment sector (14 percent), followed by
22 manufacturing (10 percent) and the arts, entertainment, and recreation, and accommodation and
23 food services sector (10 percent). The Armed Forces account for less than 1 percent of the
24 county's workforce. The remaining 10 industries employ 43 percent of the workforce.

25 Major employers in Houston County include Southeast Alabama Medical Center, Dothan City
26 and Houston County School Systems, Flowers Hospital, and the City Government of Dothan
27 (Economic Development Partnership of Alabama, 2012).

28 **Housing**

29 The U.S. Military partnered with Corvias Military Living in 2004 to create privatized military
30 housing for Fort Rucker. Corvias Military Living has past experience with privatized military
31 housing at Fort Meade, Fort Bragg, and Fort Polk. Fort Rucker's privatized military housing is
32 divided into three separate neighborhoods: Allen Heights; Bowden Terrace; and Munson Heights
33 (Corvias Military Living, 2014).

1 Allen Heights houses a mixture of Families and single Soldiers in the Company Grade Officer
2 and Junior NCO armed forces and is home to the first Neighborhood Center at Fort Rucker.
3 Two-story homes are located for the Field Grade Officer armed forces in Munson Heights.
4 Homes in Bowden Terrace accommodate Families of various armed forces rank bands (Corvias
5 Military Living, 2014). In total, the 3 neighborhoods make up approximately 1,500 total housing
6 units and are generally located in the western half of the cantonment (USACE, 2013).

7 **Schools**

8 Fort Rucker has two schools, a primary school (pre-kindergarten through grade 1) and an
9 elementary school (grade 2 through grade 6). The current enrollment is 331 students at the
10 primary school and 414 students at the elementary school. The majority of military Family
11 members that go to school off the installation are attending school in the communities of
12 Enterprise, Daleville, Ozark, and Dothan. In addition, some children attend school in the states of
13 Florida and Georgia due to proximity of the installation to communities in these states.

14 **Public Health and Safety**

15 ***Police and Fire Services***

16 According to the INRMP, the Director of Public Safety is responsible for providing military
17 police and fire protection support to the installation. Military police responsibilities of the
18 Director of Public Safety include enforcing laws and regulation on Fort Rucker
19 (Fort Rucker, 2009b).

20 ***Fire and Emergency Services***

21 According to the Integrated Wildland Fire Management Plan, the Fire Department (Director of
22 Public Safety), has the primary responsibility for prevention and suppression of wildfires. The
23 DPW Environmental and Natural Resources Division, Natural Resources Branch is the primary
24 backup for wildfires.

25 ***Medical Facilities***

26 Lyster Army Health Clinic is located on Fort Rucker and is co-located with the Veterans Affairs
27 clinic (VA Wiregrass Clinic). Other services are available in Dothan (Flowers Hospital and SE
28 Alabama Medical Center), Enterprise (Medical Center Enterprise), Ozark (Dale Medical Center),
29 or other specialty clinics. Services are also provided in Birmingham (University of Alabama), as
30 well as at the Navy facilities in Pensacola, and the Air Force facilities at Eglin AFB.

31 **Family Support Services**

32 Fort Rucker assists Soldiers and their Families with programs that include Army Emergency
33 Relief, Army Family Action Plan, Army Family Team Building, Army Volunteer Corps,
34 Exceptional Family Member Program, Family Advocacy Program, Financial Readiness Program,
35 Information and Referral Program, Mobilization and Deployment, Relocation Readiness

1 Program, Survivor Outreach Services, Victim Advocate Program, and Fort Rucker B.E.S.T. (a
2 Mentorship program for strengthening Soldiers) (U.S. Army, 2014c). There are three chapels on
3 the installation, and Fort Rucker offers religious services programs that directly support Soldiers,
4 Families, and civilians.

5 Fort Rucker provides child development centers, The Edge Program, family child care, the Hired
6 Program, Parent Central Services, school age services, school liaison services, a youth center,
7 and youth sports and fitness (U.S. Army, 2014c).

8 **Recreation Facilities**

9 Fort Rucker provides its military community, Families, and civilians with indoor and outdoor
10 aquatic centers, arts and crafts center, automotive skills center, center library, Lake Tholocco
11 lodging, outdoor recreation, physical fitness centers, riding stables, Rucker Lanes Bowling
12 Center, Silver Wings Golf Course, and Wounded Warrior Recreation (U.S. Army, 2014c).

13 **4.21.12.2 Environmental Effects**

14 **No Action Alternative**

15 The operations at Fort Rucker would continue to benefit regional economic activity. No
16 additional impacts to housing, public and social services, public schools, public safety, or
17 recreational activities are anticipated.

18 **Alternative 1—Implement Force Reductions**

19 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
20 significant impact to socioeconomic resources. The description of impacts to the various
21 components of socioeconomics is presented below.

22 ***Population and Economic Impacts***

23 Alternative 1 would result in the loss of 2,490²⁷ Army positions (1,754 Soldiers and 736 Army
24 civilians), each with an average annual income of \$46,760 and \$64,730, respectively. In addition,
25 Alternative 1 would affect an estimated 3,780 Family members (1,389 spouses and 2,390
26 children). The total population of Army employees and their Families affected under Alternative
27 1 is projected to be 6,270.

28 Based on the EIFS analysis, a significant impact is defined as a situation when the forecast
29 economic impact value falls outside the historical positive or negative ranges. Table 4.21-7
30 shows the deviation from the historical average that would represent a significant change for
31 each parameter. The last row summarizes the deviation from the historical average for the

²⁷ This number was derived by assuming the loss of 70 percent of Fort Rucker's Soldiers and 30 percent of the Army civilians.

1 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 2 by the EIFS model. Based on the EIFS analysis, there would be significant impacts to population
 3 in the ROI because the forecast change falls outside historical range of population variation.
 4 However, there would not be significant impacts to sales, income, and employment in the ROI
 5 under Alternative 1 because the estimated percentage change is within the historical range.

6 **Table 4.21-7. Economic Impact Forecast System and Rational Threshold Value**
 7 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+10.9	+5.8	+2.9	+2.3
Economic contraction significance value	-9.8	-3.3	-4.8	-1.8
Forecast value	-1.8	-2.2	-3.7	-2.3

8 Table 4.21-8 summarizes the predicted impacts to income, employment, and population of force
 9 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 10 percent change from the historical average, the percentages in the following table show the
 11 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 12 agreement with the EIFS forecast values, these figures show the same significance
 13 determinations as the EIFS predictions in the previous table.

14 **Table 4.21-8. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$157,026,600	-2,854 (Direct)	-6,270
		-534 (Induced)	
		-3,389 (Total)	
Total 2012 ROI economic estimates	\$7,406,840,000	88,214	204,922
Percent reduction of 2012 figures	-2.1	-3.8	-3.1

15 Note: Sales estimates are not consistently available from public sources for all counties in the United
 16 States; therefore, the sales data for counties are not presented in this table. The estimated
 17 reduction in total sales from EIFS is described in the paragraphs below.

18 With a potential reduction of the population in the ROI, losses in sales, income, employment,
 19 and tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on
 20 total cumulative force reductions. Because of the maximum potential loss of 2,490 Soldiers and
 21 Army civilians under Alternative 1, EIFS estimates an additional 364 direct contract service jobs
 22 would also be lost. An additional 534 induced jobs would be lost due to the reduction in demand
 23 for goods and services within the ROI. The total reduction in employment is estimated to be
 24 3,389, a 3.8 percent reduction of the total employed labor force in the ROI in 2012. Income is
 25 estimated to reduce by \$157 million, a 2.1 percent decrease in the ROI in 2012.

1 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$194.7 million.
2 Sales tax receipts to local and state governments would also decrease. The state and average
3 local sales tax for Alabama is 8.5 percent (Tax Foundation, 2014). To estimate sales tax
4 reductions, information was utilized on the proportion of sales that would be subject to sales
5 taxes on average across the county. According to the U.S. Economic Census, an estimated 16
6 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
7 Therefore, with an estimated reduction of \$194.7 million in sales, there would be an estimated
8 decrease in sales tax receipts of \$2.7 million.

9 Of the 204,922 people (including those residing on Fort Rucker) who live within the ROI, 2,490
10 military employees and their estimated 3,780 Family members are predicted to no longer reside
11 in the area under Alternative 1, resulting in a population reduction of 3.1 percent. This number
12 could overstate potential population impacts because some of the people no longer employed by
13 the Army could continue to live and work within the ROI, finding employment in other industry
14 sectors. However, because of the relatively rural nature of the ROI and that Fort Rucker serves as
15 a primary employer and economic driver within the ROI, the majority of displaced personnel are
16 likely to move out of the area to seek other opportunities with the Army or elsewhere. A small
17 number of displaced personnel may seek and find work within the ROI; however, others may not
18 be able to find new employment, with possible implications for the unemployment rate.

19 Students and trainees at Fort Rucker may have a substantial impact on the local economy
20 through lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies
21 generate demand for lodging and dining facilities when Family members attend. The impact to
22 Fort Rucker's training missions cannot be determined until after the Army completes its force
23 structure decisions; therefore, analyzing the impact to those missions is beyond the scope of
24 this document.

25 **Housing**

26 The population reduction that would result under Alternative 1 would decrease the demand for
27 housing and increase housing availability on the installation and in the region, potentially leading
28 to a reduction in median home values. With an expected decrease in population within the ROI
29 of 3.1 percent along with the considerable number of Army personnel and Family members
30 living off the installation, housing impacts under Alternative 1 would be adverse and could range
31 from minor to significant.

32 **Schools**

33 Reduction of 2,490 Soldiers and Army civilians under Alternative 1 would result in a reduction
34 of 3,780 Family members, of which 2,390 would be children. It is anticipated that school
35 districts that provide education to Army children on the installation would be impacted by this
36 action. The schools on Fort Rucker, with current enrollment of 745 students, as well as school
37 districts off the installation in Dale, Coffee, and Houston counties where Fort Rucker Army,

1 civilians, and their Families reside would be most affected under Alternative 1. If enrollment in
2 individual schools is severely affected, schools may need to reduce the number of teachers,
3 administrators, and other staff, and potentially close or consolidate with other schools within the
4 same school district should enrollment fall below sustainable levels.

5 The reduction of Soldiers on Fort Rucker would result in a loss of Federal Impact Aid dollars in
6 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
7 who are considered “federally connected” and attend district schools. Actual projected dollar
8 amounts cannot be determined at this time due to the variability of appropriated dollars from
9 year to year, and the uncertainty of the actual number of affected school-age children for Army
10 and civilian Families. School districts in the ROI would likely need fewer teachers and materials
11 as enrollment drops, which could partially offset the reduced Federal Impact Aid.

12 Overall, adverse impacts to schools associated with Alternative 1 would be minor to significant
13 depending on the reduction in the number of military-connected students attending
14 specific schools.

15 **Public Services**

16 The demand for law enforcement, medical care providers, and fire and emergency service
17 providers on the installation may decrease if Soldiers, Army civilians, and their Family members,
18 affected under Alternative 1, move out of the ROI. Adverse impacts to public services could
19 conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire
20 and rescue crews on the installation. These scenarios are not reasonably foreseeable, however,
21 and therefore are not analyzed. Regardless of any drawdown in military or civilian personnel, the
22 Army is committed to meeting health and safety requirements. Overall, minor impacts to public
23 health and safety would occur under Alternative 1. The impacts to public services are not
24 expected to be significant because the existing service level for the installation and the ROI
25 would still be available.

26 **Family Support Services and Recreation Facilities**

27 Family Support Service and recreation facilities would experience reduced demand and use and
28 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
29 committed to meeting the needs of the remaining population on the installation. As a result minor
30 impacts to Family Support Services and recreation facilities would occur under Alternative 1.

31 **Environmental Justice and Protection of Children**

32 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
33 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
34 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
35 and adverse human health or environmental effects of its programs, policies, and activities on
36 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a

1 disproportionate adverse impact to minorities, economically disadvantaged populations or
2 children in the ROI. Job losses would be experienced across all income levels and economic
3 sectors and spread geographically throughout the ROI. As shown in Tables 4.21-5 and 4.21-6,
4 the proportion of minority and poverty populations in the ROI are similar to those in the state as
5 a whole, resulting in no disproportionate effect to environmental justice populations.

6 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
7 federal agencies are required to identify and assess environmental health and safety risks that
8 may disproportionately affect children and to ensure that the activities they undertake do not
9 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
10 were to be realized, the Army is committed to implementing required environmental compliance
11 and meeting the health and safety needs of the people associated with the installation, including
12 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
13 environmental health and safety risks to children within the ROI. Additionally, this analysis
14 evaluates the effects associated with workforce reductions only, and any subsequent actions on
15 the installation that may require ground-disturbing activities that have the potential to result in
16 environmental health and safety risks to children, such as demolishing vacant buildings, is
17 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
18 as appropriate.

19 **4.21.13 Energy Demand and Generation**

20 **4.21.13.1 Affected Environment**

21 Fort Rucker's energy needs are currently met by a combination of electric power and natural gas.
22 During the past decade, Congress has enacted major energy bills, and the President has issued
23 Executive Orders that direct federal agencies to address energy efficiency and environmental
24 sustainability. The federal requirements for energy conservation that are most relevant to Fort
25 Rucker include the Energy Policy Act of 2005, E.O. 13423, *Strengthening Federal*
26 *Environmental, Energy, and Transportation Management*, issued January 2007; Energy
27 Independence and Security Act of 2007; and E.O. 13514, *Federal Leadership in Environmental,*
28 *Energy, and Economic Performance*, issued October 2009. Fort Rucker is striving to comply
29 with these requirements.

30 **Electricity**

31 The Fort Rucker electrical utility system was privatized in 2003 and is managed under a 20-year
32 contract by Alabama Power Company. The installation is served by three distribution substations
33 (Fort Rucker, 2008 as cited by USACE, 2013).

1 **Natural Gas**

2 The natural gas system at Fort Rucker was privatized in 2003 and is managed by Southeast
3 Alabama Gas District. Natural gas is delivered to the Fort Rucker distribution system via a single
4 point on the main installation (Fort Rucker, 2008 as cited by USACE, 2013).

5 **4.21.13.2 Environmental Effects**

6 **No Action Alternative**

7 Minor, adverse impacts are anticipated on energy demand and generation. The continued use of
8 outdated, energy inefficient facilities could hinder Fort Rucker's requirement to reduce energy
9 consumption. Some older facilities may require renovations to improve energy efficiency to
10 achieve federal mandate requirements.

11 **Alternative 1—Implement Force Reductions**

12 Minor, beneficial impacts to energy demand are anticipated because force reductions would
13 reduce the installation's overall demand for energy. The installation would also be better
14 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
15 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
16 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
17 these activities on energy demand are not analyzed.

18 **4.21.14 Land Use Conflicts and Compatibility**

19 **4.21.14.1 Affected Environment**

20 **Regional Setting**

21 Fort Rucker encompasses approximately 63,072 acres in southeastern Coffee and southwestern
22 Dale counties, Alabama. Land within Fort Rucker is broadly divided into a cantonment area and
23 an operations area. The installation includes the 57,772-acre main reservation and multiple off-
24 installation areas totaling 5,143 acres that are used primarily for aviation training. Of this
25 acreage, approximately 1,674 acres consist of leased land. Fort Rucker is located in the
26 Wiregrass region of southeast Alabama, approximately 70 miles north of the Florida state line
27 and 35 miles west of the Georgia state line. The communities of Enterprise, Daleville, and Ozark
28 are located west, south, and east of the installation, respectively, and the roadways to those
29 communities serve as the installation's three main gates. The nearest civilian community is
30 Daleville, Alabama, located adjacent to the cantonment area on the southern boundary of the
31 installation. The city of Dothan, Alabama, is the largest city in the region and is located
32 approximately 25 miles to the southeast of the installation (Fort Rucker, 2008).

33 Fort Rucker serves as the headquarters for U.S. Army Aviation and is the location of USAACE,
34 providing all Army aviation flight training and training helicopter pilots for other armed forces

1 branches including the Air Force as well as students from over 60 foreign countries. The current
2 mission of USAACE at Fort Rucker is to develop the Army's aviation force for its worldwide
3 mission. This includes developing concepts, doctrine, organization, training, leader development,
4 materials and Soldier requirements. USAACE provides resident and nonresident aviation
5 maintenance, logistics and leadership training support of the total force and foreign nations for
6 the sustainment of joint and combined aviation operations (Fort Rucker, 2008; Fort
7 Rucker, 2009a).

8 **Land Use at Fort Rucker**

9 Land use within the installation is generally divided into a cantonment area and an operations
10 area. The approximately 2,800-acre cantonment area is in the southern portion of Fort Rucker
11 and consists of administrative buildings, simulators and classrooms, medical facilities, housing,
12 recreational facilities, commissary, and post exchange. The cantonment area also includes
13 streets, parking, and utilities infrastructure to support the installation. The operations area is
14 largely undeveloped and includes range and training areas and aviation facilities. The current
15 training area consists of 5 Army basefields; 1 Forward Arming Refuel Point; 17 stagefields,
16 including 1 test site; and 73 remote training sites. Development within the area is concentrated
17 on the various airfields, with approximately 51,000 acres of commercial forest occupying most
18 of the area. Cairns AAF is located approximately 3 miles south of the Daleville Gate and
19 includes property south of Route 84 and east of Route 85. Lowe AHP is located adjacent to the
20 base boundary on the west side of Fort Rucker, approximately 3 miles northwest of the Daleville
21 gate. Hanchey AHP is located north of Hatch Road, approximately 4 miles northeast of the
22 Daleville gate. Shell AHP is located approximately 11 miles west of Fort Rucker and 5 miles
23 north of Enterprise, Alabama. Knox AHP is located adjacent to the installation's southern
24 boundary, approximately 2 miles east of the Daleville gate (Fort Rucker, 2008).

25 According to the Fort Rucker RPMP, land use patterns on the installation exhibit limited
26 incompatibilities. Virtually all land uses are either compatible or closely linked to neighboring
27 uses. Family housing areas are well buffered from more intensive activities by open space, and
28 housing is located adjacent to community and recreational uses. The installation's administrative
29 center is flanked by supporting classroom and training functions, while industrial activities are
30 segregated and surrounded by open space and recreational areas. The medical clinic is
31 appropriately located near the standby medical training site and is buffered to the north and south
32 by open space (Fort Rucker, 2008).

33 **Surrounding Land Use**

34 Land use within the region surrounding Fort Rucker can be classified as a mix of urban,
35 suburban and agricultural uses. As Fort Rucker has expanded in training scope and size, the
36 communities adjacent to Fort Rucker have also grown. Civilian area growth has been aided by
37 Fort Rucker, due to opportunities for housing, retail, and other opportunities for Soldiers, other
38 employees, and Families that are locating in the area. This increased development and

1 encroachment toward the installation has also created more opportunities for operational
2 conflicts, due to noise and safety effects created by aviation and weapons training. Varying
3 levels of incompatible development currently exist in the areas around Fort Rucker (Fort Rucker,
4 2009a). Communities, such as the city of Enterprise and to a lesser extent the city of Ozark,
5 continue to grow closer to areas affected by weapons training (U.S. Army Public Health
6 Command, 2011).

7 Fort Rucker and several local government officials recognized the need to study land use
8 compatibility issues around the installation and its outlying aviation facilities through
9 participating in the JLUS program. These interested partners engaged the Southeast Alabama
10 Regional Planning and Development Commission to facilitate the study (Fort Rucker, 2009a).
11 The Commission is a regional council of governments representing seven counties, including
12 Coffee and Dale counties, and provides community planning, land use planning, and economic
13 development planning services to its constituent government agencies (Southeast Alabama
14 Regional Planning and Development Commission, 2014). The 2009 Fort Rucker/Wiregrass
15 JLUS sets forth a set of goals and objectives, and proposes a number of conservation, compatible
16 land use and regulatory tools for directing growth in such a way to increase future land use
17 compatibility in the region and to strengthen the relationship between Fort Rucker and
18 surrounding communities (Fort Rucker, 2009a).

19 **4.21.14.2 Environmental Effects**

20 **No Action Alternative**

21 Less than significant (minor to moderate), adverse impacts to surrounding land use are expected
22 under the No Action Alternative. These impacts would result from operational conflicts related
23 to noise and safety as growth and development continue to take place adjacent to the installation.
24 Cooperation between Fort Rucker and surrounding governments and planning agencies through
25 the JLUS process is expected to mitigate these impacts through the development of strategies to
26 ensure compatible land use and development in the future. There would be no impacts to existing
27 land use on the installation.

28 **Alternative 1—Implement Force Reductions**

29 The configuration of existing training and operations areas is expected to remain unchanged
30 under Alternative 1. Land uses within the cantonment areas on the installation would likewise
31 remain the same. Reductions in training associated with force reductions would lead to reduced
32 land use conflicts between installation operations and adjacent land uses, since noise and safety
33 concerns would be somewhat diminished. Force reductions under Alternative 1 may lead to
34 decreased population growth in communities surrounding the installation, which in turn could
35 reduce demand for buildable land and possibly slow the encroachment of incompatible
36 development and land uses on the installation boundaries. Overall, existing installation
37 operations and surrounding land development patterns are expected to continue under

1 Alternative 1, albeit at a reduced pace; therefore, Alternative 1 is expected to have beneficial
2 impacts to land use.

3 **4.21.15 Hazardous Materials and Hazardous Waste**

4 **4.21.15.1 Affected Environment**

5 **Hazardous Materials**

6 Hazardous materials acquisition, use, handling, and disposition are managed by the Fort Rucker
7 Hazardous Materials Control Center. The Fort Rucker Logistics Readiness Center, Supply and
8 Services Branch, is responsible for overseeing the Hazardous Materials Control Center and
9 coordinating hazardous materials supply requirements for installation-wide activities. Central
10 visibility and tracking of hazardous materials by the Hazardous Materials Control Center
11 provides a way to redistribute excess but serviceable items, thus helping to reduce expenditures
12 and avoid hazardous waste disposal. Since its establishment in 1998, the Hazardous Materials
13 Control Center process has saved over \$1.5 million through efficient procurement and
14 redistribution (Fort Rucker, 2014a).

15 **Hazardous Waste Treatment, Storage and Disposal**

16 Fort Rucker hazardous waste streams result from site operations such as cleaning and
17 maintenance of aircraft, vehicles, and buildings, as well as grounds maintenance and various
18 other equipment operations at the installation. Also incorporated into the hazardous waste stream
19 is the management of hospital wastes, LBP, pesticides, herbicides, and UXO
20 (Fort Rucker, 2014a).

21 **Hazardous Waste Investigation and Remediation Sites**

22 Fort Rucker has an IRP that tracks and monitors sites on Fort Rucker that may require restoration
23 and remediation due to contamination. These areas are commonly referred to as SWMUs and
24 Areas of Concern. All IRP sites on Fort Rucker are considered to be low risk, with relatively low
25 potential to affect the natural environment or public. None of the IRP sites have extensive
26 groundwater contamination (USACE, 2013).

27 **Other Hazards**

28 Other hazards present at Fort Rucker are controlled, managed, and removed through specific
29 programs and plans and include UXO, LBP, asbestos-containing materials, hospital wastes,
30 herbicides, and pesticides.

1 **4.21.15.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts are anticipated under the No Action Alternative as there would be
4 continued use and generation of hazardous materials and wastes on Fort Rucker. The existing
5 types and quantities of hazardous wastes generated on the installation have been accommodated
6 by the existing hazardous waste management system and all materials and waste would continue
7 to be handled in accordance with all applicable laws, regulations and plans, minimizing
8 potential impacts.

9 **Alternative 1—Implement Force Reductions**

10 Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1.
11 Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced
12 numbers of people, it is likely that the potential for spills would be reduced during training and
13 maintenance activities. Waste collection, storage, and disposal processes would remain mostly
14 unchanged, although the quantities may be reduced. No violation of hazardous waste regulations
15 or the Fort Rucker hazardous waste permit is anticipated as a result of active forces reduction.
16 Volumes of generated waste are expected to decline depending on the specific units affected.

17 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
18 environmental compliance from being implemented. The Army is committed to ensuring that
19 personnel cuts will not result in non-compliance with regulations governing the handling,
20 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
21 Even if the full end-strength reductions were to be realized at Fort Rucker, the Army would
22 ensure that adequate staffing remains so that the installation would comply with all mandatory
23 environmental regulations.

24 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
25 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
26 therefore, potential impacts from these activities are not analyzed.

27 **4.21.16 Traffic and Transportation**

28 **4.21.16.1 Affected Environment**

29 Fort Rucker is located on the East Gulf Coastal Plain in southeastern Coffee and southwestern
30 Dale counties, Alabama, approximately 25 miles northwest of Dothan between the cities of
31 Daleville, Enterprise, and Ozark (USAPHC, 2011). It is approximately 90 miles due north of
32 Panama City, Florida, approximately 90 miles southeast of Montgomery, Alabama, and
33 approximately 120 miles northwest of Tallahassee, Florida (Mapquest, 2014). Fort Rucker and
34 the communities in the seven-county region are served by an adequate regional transportation
35 system, with the road and rail networks being the most accessible. Although no interstate

1 highways pass through the 7-county area, 6 federal highways, more than 30 state routes and
2 county roads, and 5 rail companies serve the area. In addition, commercial airports, river
3 transportation, and deep-water port facilities are all available within a reasonable distance from
4 Fort Rucker (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

5 **Off-Installation Roadways**

6 The road system is the most important transportation system in the seven-county region. North-
7 south movement is generally easier in the region than east-west movement, primarily because
8 highways serving the former alignment are wider and less circuitous. North-south movement is
9 facilitated by a principal arterial system consisting of U.S. Highways 231 and 431, and Alabama
10 Highway 167. These arterials provide linkage between the main urban centers of southeastern
11 Alabama and access to the cities of Montgomery, Alabama, and Columbus, Georgia, to the north
12 and Florida to the south. U.S. Highway 84 and Alabama Highway 134, though generally
13 narrower and more circuitous, provide the only adequate direct movement from east to west. To
14 the north, U.S. Highway 82 through Barbour County provides east-west movement between
15 Montgomery, Alabama and Brunswick, Georgia. In addition, Alabama Highway 52 between
16 Geneva and Columbia provides through access from Florida to Georgia, connecting with
17 highways in both states (Rust Environment and Infrastructure, 1999, as cited by
18 Fort Rucker, 2009b).

19 The closest U.S. highways to Fort Rucker are U.S. Highway 231 (a four-lane highway) to the
20 north and east of the installation and U.S. Highway 84 to the west and south of Fort Rucker.
21 Numerous Alabama state roads and county roads extend between the two U.S. highways and
22 provide access to Fort Rucker (Mapquest, 2014).

23 **Access Control Points and Installation Roadways**

24 Ozark, Enterprise and Daleville Gates are open 24/7. Newton and Faulkner Gates are open from
25 4:30 a.m. to 8:30 p.m. Monday through Friday and closed on weekends and holidays (Fort
26 Rucker, 2014c).

27 The internal road network of Fort Rucker provides motor access to all areas of the installation
28 and is capable of handling all types of highway vehicles. There are 198 miles of road on Fort
29 Rucker, of which 136 miles are paved (DPW, 2004, as cited by Fort Rucker, 2009b). The street
30 network of the cantonment area is a curvilinear grid system. Outside this area, the street network
31 follows no distinguishable pattern. All roadways are hard surfaced and generally in good
32 condition (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

33 Alabama State Road 248 (Rucker Boulevard) enters the southwest portion of the installation at
34 the Enterprise Gate, connects to Alabama State Road 249 (Andrews Avenue) and crosses the
35 center of the cantonment area. Alabama State Road 27 enters the Range on the western side of
36 the installation, passing by Range Control and the impact area. Alabama State Road 85 crosses

1 and connects with U.S. Highway 84 south of Fort Rucker and traverses the city of Daleville. It
2 enters the main cantonment area in the southeastern section of the installation through the
3 Daleville Gate, proceeds north through the cantonment, and merges with Alabama State Road
4 249. Alabama State Road 249 (also known as Andrews Avenue) provides access from U.S.
5 Highway 231 to the Ozark Gate (Mapquest, 2014; Fort Rucker, 2014c).

6 Roadways from the period prior to Fort Rucker's ownership of the property service the outlying
7 training areas, with some roads crossing from military to private land and back to military land
8 (Fort Rucker, 2009b).

9 **Commercial Air Service**

10 Montgomery, Alabama is approximately 90 miles to the north-northwest (Fort Rucker, 2014c).
11 Civilian air transportation facilities in the Fort Rucker region are limited. The only commercial
12 airport located in the Southeast Alabama Regional Planning and Development district is the
13 Dothan-Houston County Municipal Airport, approximately 25 miles east-southeast of Fort
14 Rucker. This airport serves most of the district and adjacent areas in Alabama, Florida, and
15 Georgia. Commercial passenger service to this facility is provided by Express Jet, affiliated with
16 Delta Airlines, and providing service to Atlanta. The nearest commercial jet service currently is
17 located at Montgomery, Alabama and some regional airports in the Florida panhandle. In
18 addition to the Dothan-Houston County Airport, there are 12 general aviation airports located in
19 the district (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

20 **Freight Rail Service**

21 There are about 2.3 miles (3.7 kilometers) of railroad tracks at Fort Rucker (Fort Rucker, 2014d).
22 The nearest Strategic Rail Corridor Network is the Louisville and Nashville Railroad main line
23 through Montgomery, Alabama. The Seaboard Coast Line track between Fort Rucker and
24 Montgomery is the Federal Railroad Administration Class 2 connector to Strategic Rail Corridor
25 Network (Rust Environment and Infrastructure, 1999, as cited by Fort Rucker, 2009b).

26 **Ancillary, Non-contiguous Airfield Training Support Services**

27 Fort Rucker also uses 78 leased sites to support its military mission. These sites total 1,488 acres
28 and are located in Alabama and Florida (Fort Rucker, 2014d). Satellite airfields are served by
29 county and state roads (Fort Rucker, 2009b). The non-contiguous facilities are not considered in
30 this EA.

31 **4.21.16.2 Environmental Effects**

32 **No Action Alternative**

33 The No Action Alternative would result in the continuation of current traffic congestion on and
34 near the installation. No documentation has been identified to indicate that traffic congestion is
35 considered a problem. The impact would therefore be a less than significant adverse impact.

1 **Alternative 1—Implement Force Reductions**

2 Implementing force reductions would result in a beneficial impact to traffic congestion,
3 assuming all current ACPs remain open. If the maximum reduction were to be implemented,
4 reducing the staffing level by more than 50 percent, the beneficial impact to traffic on and near
5 the installation would be noticeable. However, if the reduction in personnel also results in the
6 closure of convenience gates, or limited hours at current 24/7 operations gates, traffic impacts,
7 detours and increases in some costs (such as re-fueling contracts) might occur (Fort Rucker,
8 2014b). Gate closure actions would require further study to determine consequences and
9 potential mitigation.

10 **4.21.17 Cumulative Effects**

11 The ROI for the cumulative impacts analysis of Army 2020 realignment at Fort Rucker consists
12 of Coffee, Dale, and Houston counties in Alabama.

13 **Reasonably Foreseeable Future Projects on Fort Rucker**

14 The only reasonably foreseeable future project on Fort Rucker is the construction of a
15 consolidated elementary school for FY 2016. Implementation of the Aviation Restructure
16 Initiative could result in additional effects.

17 **Reasonably Foreseeable Future Projects outside Fort Rucker**

18 The Army is not aware of any reasonably foreseeable future projects outside Fort Rucker which
19 would be appropriate for inclusion in the cumulative impacts analysis. However, there are other
20 projects and actions that affect regional economic conditions and generally include construction
21 and development activities, infrastructure improvements, and business and government projects
22 and activities.

23 **No Action Alternative**

24 There would be no cumulative effects of the foreseeable future actions with the No Action
25 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
26 Alternative would not contribute to any changes.

27 **Alternative 1—Implement Force Reductions**

28 Overall, the potential cumulative impacts of Alternative 1 at Fort Rucker are anticipated to be
29 significant and adverse for socioeconomics, with generally beneficial impacts for the other
30 resources. The cumulative socioeconomic impact within the ROI, in addition to impacts
31 described in Section 4.21.12.2 with a reduction of 2,490 Soldiers and Army civilians could lead
32 to significant impacts to the regional economy, schools, and housing. Current and foreseeable
33 actions include construction and development activities on and off the installation, which would
34 have beneficial impacts to the regional economy through additional economic activity, jobs, and
35 income in the ROI. Additionally, the Aviation Restructure Initiative has the potential to change

1 installation populations, which would affect regional economic conditions through the jobs and
2 income they bring (or lose) within the region. Military personnel spend their money in the ROI
3 economy, supporting additional jobs, income, taxes, and sales impacts.

4 Fort Rucker is a notable employer in the region; the Armed Forces account for 5 and 6 percent of
5 the workforce in Coffee and Dale counties, respectively. The cities of Enterprise and Ozark
6 could likely absorb some of the displaced workers, depending on the economy and labor market
7 in the region. If the majority of the displaced forces are not absorbed into the local labor force,
8 there would be additional adverse impacts.

9 Fort Rucker has many Soldiers in a student status due to flight school. Cumulative actions could
10 include reduced training opportunities because of the force reductions on Fort Rucker. This could
11 lead to further adverse impacts to socioeconomic conditions because of reduced temporary
12 population and visitors and the attendant economic activity, spending, and jobs and income they
13 support. Alternative 1 and the loss of approximately 2,500 Soldiers, in combination with current
14 and foreseeable future actions, could have significant impacts to employment, income, tax
15 receipts, and housing values, and schools and in the ROI.

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1 **4.22 Fort Sill, Oklahoma**

2 **4.22.1 Introduction**

3 Fort Sill was analyzed in the 2013 PEA. Background information on the installation, including
 4 location, tenants, mission, and population is discussed in Section 4.19.1 of the 2013 PEA.

5 Fort Sill’s 2011 baseline permanent party population was 11,337. In this SPEA, Alternative 1
 6 assesses a potential population loss of 6,800, including approximately 6,022 permanent party
 7 Soldiers and 820 Army civilians.

8 **4.22.2 Valued Environmental Components**

9 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 10 significant, adverse environmental impacts are anticipated for Fort Sill; however, significant
 11 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 12 4.22-1 summarizes the anticipated impacts to VECs under each alternative.

13 **Table 4.22-1. Fort Sill Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Significant but Mitigable	Beneficial
Soils	Negligible	Negligible
Biological Resources	Negligible	Negligible
Wetlands	Negligible	Negligible
Water Resources	Negligible	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Less than Significant
Traffic and Transportation	Minor	Beneficial

1 **4.22.3 Air Quality**

2 **4.22.3.1 Affected Environment**

3 Air quality is among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.19.1.2 because there were no significant, adverse environmental impacts from
5 implementing alternatives included in the analysis. No changes have occurred to the affected
6 environment since 2013. The Fort Sill area has not been designated as a nonattainment area for
7 any criteria pollutants (EPA, 2013).

8 **4.22.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, continuation of mobile and stationary source emissions at
11 current levels would result in minor, adverse impacts to air quality.

12 **Alternative 1—Implement Force Reductions**

13 Force reductions at Fort Sill would result in minor, long-term, and beneficial impacts to air
14 quality because of reduced operations and training activities and reduced vehicle miles traveled
15 associated with the facility.

16 The relocation of personnel outside of the area because of force reductions could result in
17 negligible, short-term effects on air quality associated with mobile sources. As discussed in
18 Chapter 1, the demolition of existing buildings or placing them in caretaker status as a result of
19 the force reductions is not reasonably foreseeable and not part of the scope of this SPEA;
20 therefore, potential impacts to air quality from these activities are not analyzed.

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
22 quality regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the
23 Army would ensure that adequate staffing remains so that the installation would comply with all
24 mandatory environmental regulations.

25 **4.22.4 Airspace**

26 **4.22.4.1 Affected Environment**

27 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
28 Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of
29 implementing alternatives included in that analysis. The affected environment described in the
30 above-reference section remains essentially the same with only slight changes. Fort Sill is in the
31 process of finalizing an additional airspace expansion, with a completion of the Rule Making
32 Process being estimated for August 1, 2014 (Hafen, 2014).

1 **4.22.4.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
4 airspace at Fort Sill under the No Action Alternative. For the current analysis, Fort Sill would
5 continue to maintain current airspace operations. No airspace conflicts are anticipated and
6 impacts to airspace would remain the same as described in the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
9 would occur at Fort Sill. Under Alternative 1, implementation of proposed further force
10 reductions would continue negligible, adverse impacts to airspace. The use of airspace would not
11 change substantially with the loss of ground units as a result of this alternative and general
12 aviation would continue to require airspace to support training. The implementation of
13 Alternative 1 would not result in a decreased requirement for airspace.

14 **4.22.5 Cultural Resources**

15 **4.22.5.1 Affected Environment**

16 The affected environment was described in Section 4.19.2 of the 2013 PEA. Since 2013, Fort Sill
17 has completed an ICRMP that will be implemented in 2014. No other changes to the affected
18 environment have occurred.

19 **4.22.5.2 Environmental Effects**

20 **No Action Alternative**

21 Section 4.19.2.2 of the 2013 PEA states that the No Action Alternative would result in less than
22 significant impacts to cultural resources. Since the publication of the 2013 PEA, the installation
23 has completed an ICRMP which details the processes and procedures for the management and
24 preservation of cultural resources. Given this new information, the effects of the No Action
25 Alternative are consistent with other installations analyzed in this document. Continuation of the
26 No Action Alternative would have negligible impacts to cultural resources.

27 **Alternative 1—Implement Force Reductions**

28 The effects of troop reduction on cultural resources were described as significant but mitigable in
29 Section 4.19.2.2 of the 2013 PEA due to potential impacts to cultural resources from facility
30 demolition or abandonment. However, the Proposed Action analyzed in this document varies
31 from that in the 2013 PEA. While various vacated older buildings on the installation may be
32 programmed for demolition, as discussed in Chapter 1, the demolition of existing buildings or
33 placing them in caretaker status as a result of the reduction in forces is not reasonably

1 foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these
2 activities are not analyzed.

3 Additionally, the Army is committed to ensuring that personnel cuts will not result in non-
4 compliance with cultural resources regulations. Even if the full end-strength reductions were to
5 be realized at Fort Sill, the Army would ensure that adequate staffing remains so that the
6 installation would comply with all mandatory environmental regulations. If future site-specific
7 analysis indicates that it is necessary to vacate or demolish structures as a result of force
8 reductions, the installation would comply with applicable laws, such as NHPA, and conduct the
9 necessary analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore,
10 the implementation of this alternative would result in minor impacts to cultural resources.

11 This alternative could result in some beneficial effects as a decrease in training activities could
12 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
13 fewer people to support, there may be a reduction in the number of undertakings with the
14 potential to affect cultural resources.

15 **4.22.6 Noise**

16 **4.22.6.1 Affected Environment**

17 The affected environment for noise at Fort Sill remains effectively the same as described in
18 Section 4.19.3.1 of the 2013 PEA. The primary sources of noise at Fort Sill are blast noise from
19 artillery and impacting artillery rounds, fixed and rotary-wing aircraft, close air support training,
20 general personnel activities, and roadway noise.

21 **4.22.6.2 Environmental Effects**

22 **No Action Alternative**

23 The 2013 PEA anticipated that noise would continue to be a potentially significant impact that is
24 mitigated to less than significant through the management and scheduling of training activities.
25 Under the No Action Alternative, impacts would remain as described in the 2013 PEA.

26 **Alternative 1—Implement Force Reductions**

27 The 2013 PEA concluded that the force reductions at Fort Sill would result in minor, beneficial
28 noise impacts because a reduction in personnel would decrease the frequency of noise generating
29 training events and the amount of noise created. The beneficial impact under Alternative 1 would
30 be similar to that described in the 2013 PEA.

31 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
32 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
33 Fort Sill, the Army would ensure that adequate staffing remains so that the installation would

1 comply with all mandatory environmental regulations including noise ordinances
2 and regulations.

3 **4.22.7 Soils**

4 **4.22.7.1 Affected Environment**

5 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
6 Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the
7 implementation of alternatives included in this analysis. No changes have occurred to the
8 affected environment since 2013.

9 **4.22.7.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible impacts to soils and the
12 affected environment would remain in its present state.

13 **Alternative 1—Implement Force Reductions**

14 Per Section 4.19.1.2 of the 2013 PEA, there would be negligible impacts to soils under
15 Alternative 1. Soils on Fort Sill are naturally highly erodible and erode regardless of man-made
16 activities. The installation would continue to manage its resources in accordance with the
17 installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur
18 if the further force reductions decreased environmental staffing levels to a point where
19 environmental compliance could not be properly implemented. The Army is committed to
20 ensuring that personnel cuts will not result in non-compliance with regulations affecting soils.
21 Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure
22 that adequate staffing remains so that mandated environmental requirements would continue to
23 be met. Therefore, impacts under Alternative 1 at Fort Sill would be beneficial and remain the
24 same as those discussed in Section 4.19.7.2 of the 2013 PEA.

25 **4.22.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 26 Species)**

27 **4.22.8.1 Affected Environment**

28 Biological Resources are among the VECs excluded from detailed analysis as described in
29 Section 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts
30 resulting from the implementation of alternatives included in this analysis. No changes have
31 occurred to the affected environment since 2013.

1 **Vegetation**

2 Fort Sill lies in an ecological transition area where tall-grass prairie merges with short-grass
3 prairie, and soil variation has created diverse plant communities. Grassland communities
4 constitute more than 70 percent of Fort Sill. There are three major grassland types. Tall grasses
5 like big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass
6 (*Panicum virgatum*), and indiangrass (*Sorghastrum nutans*) dominate sites with deep soils.
7 Native legumes and other forbs are also numerous in these areas. Medium and short grasses like
8 blue grama (*Bouteloua gracilis*) and sideoats grama (*Bouteloua curtipendula*) occupy more
9 droughty hardland and slickspot soils. Medium and short grasses like hairy (*Bouteloua hirsuta*)
10 and sideoats grama and fall witchgrasses (*Leptoloma cognatum*) are abundant on very shallow
11 rocky soils. No federally protected plant species occur on the installation. Oklahoma does not
12 have a law that protects rare plant species, so no official list of state rare plants exists
13 (Fort Sill, 2003).

14 **Wildlife**

15 The diversity of natural environments at Fort Sill provides suitable habitat for a wide variety of
16 animal species. Frequently encountered animal life includes a wide range of common
17 invertebrates, birds, fish, reptiles, amphibians, and rodents. Large herbivores and large
18 carnivores, although present, are less frequently encountered.

19 Game species found at Fort Sill include bobwhite quail (*Colinus virginianus*), white-tailed deer,
20 mourning dove (*Zenaida macroura*), pheasant (*Phasianus colchicus*), elk (*Cervus elaphus*),
21 raccoon, various waterfowl species, and coyote (*Canis latrans*). Common mammals inhabiting
22 the installation include bobcat (*Lynx rufus*), striped skunk, cottontail rabbit, fox squirrel (*Sciurus*
23 *niger*), beaver, opossum, prairie vole (*Microtus ochrogaster*), deer mouse (*Peromyscus*
24 *maniculatus*), white-footed mouse (*P. leucopus*), and several bat species. Fish species commonly
25 found on Fort Sill include largemouth bass, bluegill, redear sunfish (*L. microlophus*), green
26 sunfish (*L. cyanellus*), and channel catfish.

27 **Threatened and Endangered Species**

28 Federally listed species that may occur in Comanche County are the black-capped vireo (*Vireo*
29 *atricapillus*), least tern, piping plover, and whooping crane (*Grus americana*). The black-capped
30 vireo is the only federally listed species documented to occur at Fort Sill. Habitat for the black-
31 capped vireo is scattered within the training areas north and west of the cantonment area
32 (Fort Sill, 2003).

33 **4.22.8.2 Environmental Effects**

34 **No Action Alternative**

35 Implementation of the No Action Alternative would result in no significant impacts to biological
36 resources and the affected environment would remain in its present state. Management of

1 biological resources on Fort Sill would continue in accordance with the current installation
2 INRMP (Fort Sill, 2003).

3 **Alternative 1—Implement Force Reductions**

4 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to biological
5 resources including, vegetation, wildlife, and threatened or endangered species would occur on
6 Fort Sill. The Army anticipates that further proposed reduction in forces would not change this
7 finding due to a decrease in the frequency of land usage in the Fort Sill training areas, which
8 would limit potential Soldier disturbance of sensitive species and habitats. The Army is
9 committed to ensuring that personnel cuts will not result in non-compliance with natural
10 resources regulations. Even if the full end-strength reductions were to be realized at Fort Sill, the
11 Army would ensure that adequate staffing remains so that the installation would comply with all
12 mandatory environmental regulations.

13 **4.22.9 Wetlands**

14 **4.22.9.1 Affected Environment**

15 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
16 Section 4.19.1.2 due to lack of significant, adverse environmental impacts as a result of
17 implementing alternatives included in that analysis. No changes have occurred to the affected
18 environment since 2013.

19 **4.22.9.2 Environmental Effects**

20 **No Action Alternative**

21 Implementation of the No Action Alternative would result in negligible, adverse impacts to
22 wetlands and the affected environment would remain in its present state.

23 **Alternative 1—Implement Force Reductions**

24 Per Section 4.19.1.2 of the 2013 PEA, there would be negligible changes to wetlands under
25 Alternative 1. The installation would continue to manage its wetlands in accordance with the
26 installation INRMP. Impacts to wetlands could conceivably occur if the further force reductions
27 decreased environmental staffing levels to a point where environmental compliance could not be
28 properly implemented. The Army is committed, however, to ensuring that personnel cuts will not
29 result in non-compliance with wetland regulations. Even if the full end-strength reductions were
30 to be realized at Fort Sill, the Army would ensure that adequate staffing remains so that
31 mandated environmental requirements would continue to be met. Therefore, impacts under
32 Alternative 1 at Fort Sill would remain the same as those discussed in Section 4.19.1.2 of the
33 2013 PEA.

1 **4.22.10 Water Resources**

2 **4.22.10.1 Affected Environment**

3 Water resources are among the VECs excluded from detailed analysis as described in Section
4 4.19.1.2 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting
5 from the implementation of alternatives included in this analysis. The affected environment
6 remains essentially the same with the exception of one change. East Cache Creek is impaired for
7 dissolved oxygen, sulfates, and pH, not for lead and turbidity (Leland, 2014). Blue Beaver Creek
8 is impaired for pathogens (Fort Sill, 2014b).

9 **4.22.10.2 Environmental Effects**

10 **No Action Alternative**

11 Implementation of the No Action Alternative would result in negligible impacts to water
12 resources similar to those described in Section 4.19.1.2 of the 2013 PEA. There would be no
13 change to the existing surface waters and water supply as described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 Under Alternative 1 in the 2013 PEA, beneficial impacts to water resources, including reduction
16 in water demand and stormwater runoff, would occur on Fort Sill. Reduction in training area use
17 from force reductions on the installation would also potentially reduce impacts to surface waters
18 due to disturbance and spills. The Army anticipates that further proposed reduction in forces
19 would not change this finding because Alternative 1 of this SPEA does not involve major
20 changes to installation operations or types of activities conducted on Fort Sill, only a decrease in
21 the frequency of training activities. The installation would continue to manage its water
22 resources in accordance with applicable federal and state water quality criteria, drinking water
23 standards, and stormwater and floodplain management requirements.

24 Adverse water resources impacts could conceivably occur if personnel cuts prevented
25 environmental compliance from being implemented. The Army is committed to ensuring that
26 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
27 end-strength reductions were to be realized at Fort Sill, the Army would ensure that adequate
28 staffing remains so that mandated environmental requirements would continue to be met
29 and implemented.

30 **4.22.11 Facilities**

31 **4.22.11.1 Affected Environment**

32 Facilities is among the VECs excluded from detailed analysis in the 2013 PEA as described in
33 Section 4.19.1.2 due to lack of significant, adverse environmental impacts resulting from the
34 implementation of alternatives included in the analysis. No changes have occurred to the affected

1 environment since 2013, though some corrections to information are noted. As described in the
2 2013 PEA, Fort Sill is composed of 7,800 acres of cantonment area and 85,608 acres of
3 rangeland. Rangeland includes 37,306 acres of impact area and 48,302 acres of training areas. In
4 addition, about 5,000 acres of land are available for agricultural use (this is a correction from the
5 3,000 acres noted in the 2013 PEA). The facilities within the cantonment area include housing,
6 industrial, administrative, medical, and recreation. Approximately 2,400 buildings and other
7 structures are located on the installation. Henry Post Airfield has one paved runway and two sod
8 runways. Other airfield facilities on Fort Sill include an UAS strip, three sod airstrips, and five
9 paved helicopter landing pads. Something that was not noted in the 2013 PEA, Fort Sill has
10 established seven adaptable use zones to assist in future project planning. Adaptable use zones
11 are identified areas of likely future development or redevelopment in the cantonment and range
12 areas. This allows the installation to maximize existing compatible land use while minimizing
13 environmental degradation. All actions occurring within the adaptable use zones conform to
14 local environmental laws, regulations, and associated permitting requirements (Fort Sill, 2013).

15 **4.22.11.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the VEC dismissal statement in the 2013 PEA concluded there
18 would be negligible impacts to facilities at Fort Sill. For the current analysis, Fort Sill would
19 continue to operate and maintain its existing facilities in accordance with its current
20 requirements, resulting in negligible impacts.

21 **Alternative 1—Implement Force Reductions**

22 The analysis of force reductions in the 2013 PEA VEC dismissal statement concluded that
23 beneficial impacts to facilities would occur on Fort Sill; concluding that the reduction in forces
24 would allow for the removal and release of temporary, relocatable, buildings and the demolition
25 of some older, energy inefficient buildings. It also noted that with the implementation of force
26 reduction, some permanent facilities may be able to be redesignated to support units remaining at
27 Fort Sill to provide more space and facilities better able to meet tenant unit needs. However, full
28 implementation of the Proposed Action would likely affect the ability of Fort Sill's privatized
29 housing to fill all on-installation housing units. Additional actions would be programmed under
30 the Facility Reduction Program to increase installation building performance and energy
31 efficiency to save on installation operating costs and utilities.

32 Under Alternative 1, implementation of the proposed further force reductions would result in
33 overall minor, adverse impacts. Impacts would occur from the fact that future, programmed
34 construction or expansion projects may not occur or could be downscoped; moving occupants of
35 older, underutilized, or excess facilities into newer facilities may require modifications to
36 existing facilities; and a greater number of buildings on the installation may become vacant or
37 underutilized due to reduced requirements for facilities, which would have a negative impact on

1 overall space utilization. Some beneficial impacts are also expected as a result of force
2 reductions such as reduced demands for utilities and reduced demands for training facilities and
3 support services. As discussed in Chapter 1, the demolition of existing buildings or placing them
4 in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part
5 of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

6 **4.22.12 Socioeconomics**

7 **4.22.12.1 Affected Environment**

8 Fort Sill is located near Lawton, Oklahoma, about 90 miles southwest of Oklahoma City. The
9 ROI for Fort Sill in this analysis includes those areas that are generally considered the
10 geographic extent to which the majority of the installation's Soldiers, Army civilians, contractor
11 personnel, and their Families reside. The ROI consists of Comanche County, Oklahoma.

12 This section provides a summary of demographic and economic characteristics within the ROI.
13 These indicators are described in greater detail in Section 4.19.4 of the 2013 PEA. However,
14 some demographic and economic indicators have been updated where more current data
15 are available.

16 **Population and Demographics**

17 Using 2011 as a baseline, Fort Sill has a total working population of 29,052 consisting of active
18 component Soldiers, Army civilians, Reservists, other military services, and contractors. Of the
19 total working population, 11,337 were permanent party Soldiers and Army civilians.
20 Additionally, Fort Sill has a daily population of more than 9,500 temporary trainees and students.
21 In FY 2011, the population that lived on Fort Sill consisted of 3,400 Soldiers and an estimated
22 2,240 Family members, for a total on-installation resident population of 5,640 (Fort Sill, 2014a).
23 Finally, the portion of Soldiers and Army civilians living off the installation in 2011 was
24 estimated to be 19,985 and consists of Soldiers, Army civilians, and their Family members.

25 Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery
26 School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned
27 Officers Academy. The Fires Center of Excellence also includes Basic Combat Training,
28 Captains Career Course, Warrant Officer Basic Course, and numerous functional courses
29 including the Joint Forward Air Controller and Joint Forward Observer courses, and also
30 supports the Electronic Warfare School and the Ordnance Training Detachment. Basic and the
31 majority of AIT trainees live on the installation in barracks during their training. Students in
32 advanced schoolhouses are based at Fort Sill for the expected length of their assigned curriculum
33 which may range from 4 weeks to 51 weeks. In addition to the barracks, students may also be
34 housed in Army lodging or in facilities off the installation. Barracks and off installation facilities
35 are also heavily used for ARNG/U.S. Army Reservist training. In 2013, 11,049 students and
36 trainees were assigned to Fort Sill for TDY training (Fort Sill, 2014b).

1 In 2012, the ROI had a population of 126,546, a 2.0 percent increase from 2010 (Table 4.22-2).
 2 As shown in Table 4.22-3, Comanche County has more African American and Hispanic
 3 residents than Oklahoma as a whole (U.S. Census Bureau, 2012a).

4 **Table 4.22-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Comanche County, Oklahoma	126,546	2.0

5 **Table 4.22-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Oklahoma	75.5	7.6	9.0	1.9	5.8	9.3	67.9
Comanche County, Oklahoma	66.9	17.7	6.2	2.4	6.2	12.0	58.1

6 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

7 **Employment and Income**

8 Information presented below represents an update from the 2013 PEA, which provided
 9 employment and income data from 2009. Between 2000 and 2012, total employment in
 10 Comanche County increased by 10.6 percent (Table 4.22-4) (U.S. Census Bureau, 2000 and
 11 2012b). The median household and home value in Comanche County is relatively similar to the
 12 Oklahoma average. In Comanche County, the percentage of people living below the poverty line
 13 is slightly lower than in Oklahoma overall (U.S. Census Bureau, 2012b).

14 Information regarding the workforce by industry for Comanche County was obtained from the
 15 U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for the
 16 employed labor force.

17 **Table 4.22-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Oklahoma	1,711,480	+9.1	110,800	44,891	16.6
Comanche County, Oklahoma	58,803	+10.6	110,900	46,320	16.5

1 The primary employment sector is educational services, and health care and social assistance (21
 2 percent). The Armed Forces is the second largest employment sector (18 percent), followed by
 3 public administration and retail trade (9 percent individually). The remaining 10 sectors employ
 4 43 percent of the workforce.

5 **Housing**

6 Fort Sill currently has 1,811 Family housing units on the installation, which are managed through
 7 a partnership with Corvias Military Living through the RCI (Vogt, 2014). Permanent party
 8 Soldiers occupy all available installation housing units. Fort Sill has barracks space for 2,546
 9 unaccompanied permanent personnel. Permanent party Soldiers are allotted 118 square feet of
 10 living space while trainee Soldiers are allotted 72 square feet. Currently, approximately 26.9
 11 percent of the 4,837 barrack spaces are available (Fort Sill, 2014a). Approximately 5,000 off-
 12 installation Family housing units support Fort Sill Soldiers. Additional housing information is
 13 provided in the 2013 PEA.

14 **Schools**

15 Military-connected students residing on the installation attend Lawton Public Schools. Two
 16 elementary schools are located on Fort Sill, serving a combined 1,004 military-connected
 17 students. All middle and high school students residing on Fort Sill attend schools off the
 18 installation and in the larger ROI. More than 8,000 military-connected students attend regional
 19 public schools (Murray, 2014). Military-connected students living off the installation attend
 20 various public schools across the ROI. Total enrollment and the number and percent of military-
 21 connected students enrolled in schools across the ROI is shown in Table 4.22-5.

22 **Table 4.22-5. School Capacity Data for Schools Serving Military-Connected Students,**
 23 **2012–2013 Academic Year**

District Name	Total Enrollment	Military-Connected Students (number)	Military-Connected Students (percent)
Bishop	490	229	46.7
Boone-Apache	591	45	7.6
Cache	1,672	339	20.3
Central High	418	34	8.1
Chattanooga	271	0	0.0
Cyril	343	26	7.56
Duncan	3,933	0	0.0
Elgin	1,839	733	39.9
Fletcher	465	71	15.3
Flower Mound	336	130	38.7

District Name	Total Enrollment	Military-Connected Students (number)	Military-Connected Students (percent)
Frederick	882	0	0.0
Geronimo	372	102	27.4
Indiahoma	203	22	10.8
Lawton	16,216	6,439	39.7
Marlow	1,355	0	0.0
Sterling	413	55	13.3
Snyder	530	9	1.7
Walters	698	86	12.3
TOTAL	31,027	8,320	26.8

1 **Public Health and Safety**

2 The Fort Sill Police Department oversees police protection services on the installation while city,
 3 county, and state police departments provide law enforcement in the ROI. The Fort Sill Fire and
 4 Emergency Services Division has mutual aid agreements with Comanche, Cotton, Grady, and
 5 Tillman counties, the city of Lawton, Reynolds Army Community Hospital, Wichita Mountains
 6 National Wildlife Refuge, Great Plains Technology Center, the city of Lawton Emergency
 7 Communications Center, and the state of Oklahoma/city of Tulsa.

8 Medical services on the installation are administered at Reynolds Army Community Hospital.
 9 The hospital and a Troop Medical Clinic, also located on the installation, provide healthcare
 10 services to basic trainees, AIT students, reservists, active component personnel, retirees, and
 11 their Family members residing within a 40-mile radius of Fort Sill (Rhodes, 2014). The
 12 installation also has a Warrior Transition Unit which takes care of Soldiers with long-term or
 13 complex health issues. Additional information regarding public health and safety is provided in
 14 the 2013 PEA.

15 **Family Support Services**

16 Fort Sill ACS, a human service organization, has a number of programs and services in place to
 17 assist Soldiers and their Families under FMWR. CYSS, a Division of FMWR, provides facilities
 18 and child care for children 6 weeks to 18 years of age. Sports and instructional classes are
 19 provided to children of active component military and DoD civilian and contractor personnel.
 20 Children of retired military are eligible to participate in the middle school and teen, youth sports
 21 and SKIES programs. Additional information on Family Support Services is provided in the
 22 2013 PEA.

1 **Recreation Facilities**

2 There are a variety of recreation facilities that can be used by members of the Fort Sill
3 community. These services are provided by the Fort Sill FMWR. Facilities and activities include
4 but are not limited to a recreation center with an outdoor adventure center, fitness center,
5 racquetball courts, swimming pools, summer bowling camp, camping, and special events, such
6 as Fort Sill's Western Heritage Days (Fort Sill, 2014c).

7 **4.22.12.2 Environmental Effects**

8 **No Action Alternative**

9 The continuation of operations at Fort Sill represents a beneficial source of regional economic
10 activity. No additional impacts to housing, public and social services, public schools, public
11 safety, or recreational activities are anticipated.

12 **Alternative 1—Implement Force Reductions**

13 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
14 significant impact to socioeconomic resources. The description of impacts to the various
15 components of socioeconomics is presented below.

16 ***Population and Economic Impacts***

17 Alternative 1 would result in the loss of up to 6,842²⁸ Army positions (6,022 Soldiers and 820
18 Army civilians), with an average annual income of \$46,760 and \$53,179, respectively. In
19 addition, this alternative would affect an estimated 10,386 Family members, including 3,818
20 spouses and 6,568 children. The total number of Army employees and their Family members
21 who may be directly affected by Alternative 1 is projected to be 17,228.

22 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
23 forecast value falls outside the historical positive and negative range. The range of values that
24 would represent a significant economic impact in the Fort Sill ROI are summarized in Table
25 4.22-6. The last row summarizes the estimated economic impacts of Alternative 1 to the region
26 as estimated by the EIFS model. Based on the EIFS analysis, there would significant impacts to
27 sales, income, employment, and population because the estimated percentage change is outside
28 the historical range.

²⁸ This number was derived by assuming the loss of 70 percent of Fort Sill's Soldiers and 30 percent of the Army civilians to arrive at 6,842. The 2013 PEA assumed the loss of 35 percent of Fort Sill's Soldiers and 15 percent of the Army civilians to arrive at 4,714.

1 **Table 4.22-6. Economic Impact Forecast System and Rational Threshold Value**
 2 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+15.9	+7.2	+6.8	+7.6
Economic contraction significance value	-6.4	-4.0	-5.3	-3.9
Forecast value	-6.9	-8.0	-14.2	-12.8

3 Table 4.22-7 summarizes the predicted impacts to income, employment, and population of force
 4 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 5 percent change from the historical average, the percentages in the following table show the
 6 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 7 agreement with the EIFS forecasted values, these figures show the same significance
 8 determinations as the EIFS predictions in the previous table.

9 **Table 4.22-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$373,991,900	-7,690 (Direct)	-17,228
		-792 (Induced)	
		-8,482 (Total)	
Total 2012 ROI economic estimates	\$4,664,387,000	58,803	126,546
Percent reduction of 2012 figures	-8.0	-14.4	-13.6

10 Note: Sales estimates are not consistently available from public sources for all counties in the United
 11 States; therefore, the sales data for counties are not presented in this table. The estimated
 12 reduction in total sales from EIFS is described in the paragraphs below.

13 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 14 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 15 cumulative force reductions. Because of the maximum potential loss of 6,842 Soldiers and Army
 16 civilians under Alternative 1, EIFS estimates an additional 848 direct contract service jobs would
 17 also be lost. An additional 792 induced jobs would be lost because of the reduction in demand
 18 for goods and services within the ROI. The total reduction in employment is estimated to be
 19 8,482, a significant reduction of 14.4 percent from the total employed labor force in the ROI of
 20 58,803. Income is estimated to fall by \$374.0 million, a 8.0 percent decrease in income
 21 from 2012.

22 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$335.3 million.
 23 There would also be a loss in sales tax receipts to local and state governments. The average state
 24 and local sales tax rate for Oklahoma is 8.72 percent (Tax Foundation, 2014). To estimate sales
 25 tax reductions, information on the proportion of sales that would be subject to sales tax on

1 average across the country was utilized. According to the U.S. Economic Census, an estimated
2 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census,
3 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of
4 \$335.3 million resulting in an estimated sales tax receipts decrease of \$4.7 million under
5 Alternative 1 if all sales occurred in Oklahoma. The actual sales tax impact may be higher due to
6 additional local tax rates that have not been estimated here.

7 Of the 126,546 people (including those residing on Fort Sill) who live within the ROI, 6,842
8 military employees and their estimated 10,386 Family members are predicted to no longer reside
9 in the area under Alternative 1, resulting in a significant population reduction of 13.6 percent. To
10 ensure the potential impacts were captured to the greatest extent possible, this population loss
11 was assessed against the EIFS threshold of -3.9 percent and determined to be a significant
12 impact. This number could overstate potential population impacts because some people no
13 longer employed by the military may continue to live and work within the ROI, finding
14 employment in other industry sectors. However, because of the rural nature of the ROI and the
15 fact that Fort Sill serves as a primary employer and as an economic driver within the ROI, the
16 majority of displaced personnel are likely to move out of the area to seek other opportunities
17 with the Army or elsewhere. There are few employment sectors in the ROI to absorb the number
18 of displaced military employees. A small number of displaced personnel may seek and find work
19 within the ROI; however, others may not be able to find new employment.

20 Additionally, installation students may have a substantial impact on the local economy through
21 lodging, eating, and shopping expenditures. Also, formal graduation ceremonies generate
22 demand for lodging and dining facilities when Family members attend. The impact to Fort Sill's
23 training missions cannot be determined until after the Army completes its force structure
24 decisions; therefore, analyzing the impact to those missions is beyond the scope of
25 this document.

26 **Housing**

27 The population reduction under Alternative 1 would lead to a decreased demand for housing and
28 increased housing availability on the installation and across the ROI, potentially resulting in a
29 decrease in median home values. Because of the relatively small population of the ROI, the
30 reduced demand for housing associated with the force reductions under Alternative 1 has the
31 potential to result in minor to significant impacts to the housing market in the ROI.

32 **Schools**

33 Military-connected students living on Fort Sill attend Lawton Public Schools, both on and off the
34 installation. Military-connected students living off the installation attend various public schools
35 across the ROI. As shown in Table 4.22-5, military-connected students represent a significant
36 share of total school district enrollment in the Bishop, Cache, Elgin, Flower Mound, Geronimo,
37 and Lawton schools. Under Alternative 1, the reduction of 6,800 Army personnel would decrease

1 the number of children in the ROI by 6,568, a portion of whom attend schools in these districts.
2 Subsequently, enrollment would decrease in public school districts across the ROI. If enrollment
3 in individual schools is significantly impacted, schools may need to reduce the number of
4 teachers, administrators, and other staff, and potentially close or consolidate with other schools
5 should enrollment fall below sustainable levels.

6 School districts receive sizable Federal Impact Aid funds, the allocation of which is based on the
7 number of military-connected students they support. The actual projected loss of Federal Impact
8 Aid funds cannot be determined at this time due to the variability of appropriated dollars from
9 year to year and the uncertainty regarding the specific impacts to ROI school enrollment.
10 However, it is anticipated that schools across the ROI, particularly in those in the districts
11 mentioned above, would likely need fewer teachers and materials as enrollment declines, which
12 would partially offset the reduction in Federal Impact Aid. Overall, schools within the ROI could
13 experience significant, adverse impacts from the decline in military-connected student
14 enrollment that would result under Alternative 1.

15 **Public Services**

16 A reduction in personnel would have minor impacts to emergency services, fire, police, and
17 medical services because the reduction is anticipated to decrease the need for these services.
18 Adverse impacts to public services could conceivably occur if personnel cuts were to
19 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
20 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
21 any drawdown in military or civilian personnel, the Army is committed to meeting health and
22 safety requirements. The impacts to public services are not expected to be significant because the
23 existing service level for the installation and the ROI would still be available.

24 **Family Support Services and Recreation Facilities**

25 Family Support Services and recreation facilities would experience reduced demand and use and
26 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
27 committed to meeting the needs of the remaining population on the installation. As a result,
28 minor impacts to Family Support Services and recreation facilities would occur under
29 Alternative 1.

30 **Environmental Justice**

31 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
32 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
33 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
34 and adverse human health or environmental effects of its programs, policies, and activities on
35 minority and low-income populations” (EPA, 1994). As shown in Table 4.22-3 the proportion of
36 minority populations is higher in Comanche County than the proportion in Oklahoma as a whole.
37 The proportion of Comanche County residents living below the poverty line is slightly lower

1 than in Oklahoma as a whole. Because minority populations are more heavily concentrated in
2 Comanche County, the implementation of Alternative 1 has the potential to result in adverse
3 impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians directly
4 affected under Alternative 1 move to areas outside the ROI. However, it is not anticipated that
5 Alternative 1 would have disproportionate adverse impacts to minorities, economically
6 disadvantaged populations or children in the ROI. Job losses would be experienced across all
7 income levels and economic sectors and spread geographically throughout the ROI.

8 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
9 federal agencies are required to identify and assess environmental health and safety risks that
10 may disproportionately affect children and to ensure that the activities they undertake do not
11 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
12 were to be realized, the Army is committed to implementing required environmental compliance
13 and meeting the health and safety needs of people associated with the installation, including
14 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
15 environmental health and safety risks to children within the ROI. Additionally, this analysis
16 evaluates the effects associated with workforce reductions only, and any subsequent actions on
17 the installation that may require ground-disturbing activities that have the potential to result in
18 environmental health and safety risks to children, such as demolishing vacant buildings, is
19 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
20 as appropriate.

21 **4.22.13 Energy Demand and Generation**

22 **4.22.13.1 Affected Environment**

23 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
24 PEA as described in Section 4.19.1.2 due to lack of significant, adverse environmental impacts
25 resulting from the implementation of alternatives included in this analysis. No changes have
26 occurred to the affected environment since 2013. As described in the 2013 PEA, American
27 Electric Power supplies all the primary electric power to Fort Sill from two different substations.
28 The electric distribution system on the installation is owned by the government and is currently
29 being upgraded and converted to an underground distribution system. Fort Sill's natural gas
30 system has been privatized and is currently owned and operated by Oklahoma Natural Gas.
31 Geothermal wells have been installed across the installation for heating and cooling purposes.
32 New constructions, as well as older structures, are being outfitted with solar panels to
33 supplement energy usage.

1 **4.22.13.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA VEC dismissal statement concluded that there
4 would be negligible impacts to energy demand and generation at Fort Sill. For the current
5 analysis, maintenance of existing utility systems would continue and Fort Sill would continue to
6 consume similar types and amounts of energy so impacts to energy demand and generation
7 would remain the same as for the 2013 PEA.

8 **Alternative 1—Implement Force Reductions**

9 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
10 demand and generation would occur on Fort Sill. Under Alternative 1, minor, beneficial impacts
11 to energy are anticipated due to a further reduction in energy consumption associated with the
12 additional force reductions. The installation would also be better positioned to meet energy and
13 sustainability goals.

14 **4.22.14 Land Use Conflicts and Compatibility**

15 **4.22.14.1 Affected Environment**

16 Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
17 Section 4.19.1.2, due to beneficial or no impacts as a result of implementing alternatives
18 included in that analysis.

19 **4.22.14.2 Environmental Effects**

20 **No Action Alternative**

21 Similar to the 2013 PEA, under the No Action Alternative, there would be no changes to land
22 use conditions, and no impacts are anticipated.

23 **Alternative 1—Implement Force Reductions**

24 The 2013 PEA concluded that the force reductions at Fort Sill would result in beneficial impacts
25 to installation land use, since a minor decrease in training land use would have the potential to
26 reduce noise and military training across the installation. Under Alternative 1, impacts would be
27 similar to those described in the 2013 PEA.

28 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
29 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
30 at Fort Sill, the Army would ensure that adequate staffing remains so that the installation would
31 comply with all mandatory environmental regulations including land use ordinances
32 and regulations.

1 **4.22.15 Hazardous Materials and Hazardous Waste**

2 **4.22.15.1 Affected Environment**

3 As described in the 2013 PEA, hazardous materials are used on Fort Sill. Numerous maintenance
4 activities, such as vehicle operation and maintenance, hospital services, and grounds
5 maintenance, require the use and storage of regulated and non-regulated hazardous materials.
6 Fort Sill has developed a Hazardous Materials and Waste Management Plan that prescribes
7 responsibilities, policies, and procedures for managing hazardous materials and waste on the
8 installation. The plan was written to ensure compliance with applicable federal, state, and local
9 laws and regulations. Fort Sill's SPCC Plan addresses the prevention of unintentional pollutant
10 discharges from the bulk storage and handling of petroleum products and other hazardous
11 materials. The plans detail the specific storage locations, the amount of material in potential spill
12 sites throughout Fort Sill, and spill countermeasures that must be taken to minimize hazards from
13 fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste. In
14 addition, Fort Sill has incorporated hazardous waste reduction and pollution prevention into its
15 hazardous waste management operations. Examples of hazardous wastes generated at the
16 installation are waste paint, spent solvents, photographic waste, contaminated fuel, battery waste,
17 pharmaceutical waste, aerosols, alcohols, acids, pesticides, and paint thinners. No substantial
18 changes have occurred to the affected environment since 2013.

19 **4.22.15.2 Environmental Effects**

20 **No Action Alternative**

21 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
22 Use of hazardous materials and generation of hazardous wastes would continue on Fort Sill in
23 accordance with all applicable laws, regulations and plans.

24 **Alternative 1—Implement Force Reductions**

25 The analysis of Alternative 1 in the 2013 PEA concluded that temporary and less than significant
26 impacts from hazardous materials and hazardous waste would occur on Fort Sill. Alternative 1 in
27 this SPEA is not expected to involve major changes to the installation operations or types of
28 activities conducted on Fort Sill. Because of the reduced numbers of people, it is likely that the
29 potential for spills would be reduced further during training and maintenance activities. The
30 volume of waste generated and material requiring storage would increase slightly because
31 deactivating units would turn in hazardous material for storage to avoid transportation risks.
32 Under Alternative 1 in this SPEA, Fort Sill would continue to implement its hazardous waste
33 management in accordance with its Hazardous Materials and Waste Management Plan and
34 applicable regulations and the impacts would be less than significant.

35 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
36 environmental compliance from being implemented. The Army is committed to ensuring that

1 personnel cuts will not result in non-compliance with regulations governing the handling,
2 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
3 Even if the full end-strength reductions were to be realized at Fort Sill, the Army would ensure
4 that adequate staffing remains so that the installation would comply with all mandatory
5 environmental regulations.

6 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
7 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
8 therefore, potential impacts from these activities are not analyzed.

9 **4.22.16 Traffic and Transportation**

10 **4.22.16.1 Affected Environment**

11 The transportation affected environment of the Fort Sill ROI remains the same as described in
12 Section 4.19.6.1 of the 2013 PEA with an estimated daily traffic volume through the Fort Sill
13 gates being approximately 24,554 vehicles, and an average daily traffic volume on weekends and
14 holidays through the gates being approximately 11,673 vehicles.

15 **4.22.16.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts and these
18 impacts would not change. Traffic volume on the installation would not change and the number
19 of Soldiers, Army civilians, and Family members using the Fort Sill transportation system would
20 not change. Minor delays at ACPs would continue. Overall, LOS on major roadways and access
21 points would remain acceptable.

22 **Alternative 1—Implement Force Reductions**

23 As noted in the 2013 PEA, the Army anticipated minor, beneficial impacts to traffic and
24 transportation as a result of the implementation of force reductions. Traffic volume on the
25 installation would decrease, and traffic volume in the local community would decrease to a
26 minor extent. Minor delays at major ACPs would decrease in duration. These beneficial impacts
27 would also occur under Alternative 1 though with greater force reductions, the beneficial impacts
28 would be larger than anticipated at the time of the 2013 PEA.

29 **4.22.17 Cumulative Effects**

30 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
31 realignment at Fort Sill includes Comanche County in Oklahoma. Section 4.19.7 of the 2013
32 PEA noted numerous planned or proposed actions within the ROI that reasonably could be
33 initiated within the next 5 years and would have the potential to cumulatively add impacts to
34 Alternative 1. A number of the Army's proposed projects have been previously identified in the

1 installation's Real Property Master Planning Board and are programmed for future execution.
2 Additional actions have been identified beyond those noted in the cumulative effects analysis of
3 the 2013 PEA and are shown below.

4 **Reasonably Foreseeable Future Projects on Fort Sill**

5 Fort Sill is in process of changing the Category Code for 1,201 acres of buffer area for use as
6 maneuver area. Fort Sill is also in process of designating areas on the installation for use of
7 prototype electronic warfare systems.

8 **Reasonably Foreseeable Future Projects outside Fort Sill**

9 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
10 future projects outside Fort Sill that would be appropriate for inclusion in the cumulative impacts
11 analysis. However, there are other projects and actions that affect regional economic conditions
12 and generally include construction and development activities, infrastructure improvements, and
13 business and government projects and activities. Additionally, smaller, less diversified
14 economies will be more vulnerable to force reductions and provide fewer opportunities to
15 displaced Army employees.

16 **No Action Alternative**

17 The cumulative effects due to the No Action Alternative are essentially the same as was
18 determined in the 2013 PEA. Cumulative impacts of the No Action Alternative will range from
19 beneficial to minor and adverse for all resources except noise, which is anticipated to be
20 significant but mitigable. Current socioeconomic conditions would persist within the ROI, and
21 the No Action Alternative would not contribute to any changes.

22 **Alternative 1—Implement Force Reductions**

23 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
24 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Sill is anticipated to
25 be significant and adverse for socioeconomics, with impacts ranging from less than significant to
26 beneficial for the other resources.

27 The socioeconomic impact under Alternative 1, as described in Section 4.22.12.2 with a loss of
28 6,842 Soldiers and Army civilians, could lead to significant impacts to population, the regional
29 economy, schools, and housing, specifically in the ROI city of Lawton, Oklahoma. Fort Sill has
30 been an economic driver of the region, employing over 11,000 Soldiers and civilian employees
31 within the ROI. The relatively smaller economy of the ROI depends on the installation's
32 employment and economic activity. Specifically, in Comanche County, the Armed Forces
33 account for 18 percent of the workforce, demonstrating the importance of the installation to
34 employment opportunities in the ROI. With fewer opportunities for employment, the ROI would
35 likely not be able absorb many of the displaced forces. If the majority of the displaced forces are
36 not absorbed into the local labor force, there would be additional adverse impacts.

1 Fort Sill went through a recent realignment, which resulted in a decrease of 900 permanent
2 personnel. Recent Army garrison management decisions have led to reductions in the Army
3 civilian employee population at Fort Sill. These stationing changes would affect regional
4 economic conditions through the loss of jobs and income within the region. The loss of
5 additional military personnel would result in less spending in the ROI economy, with the loss of
6 additional jobs, income, taxes, and sales impacts. The recent closure of two large call centers in
7 Lawton, Oklahoma, may also contribute to a decline in employment within the ROI.

8 Fort Sill is home to the Fires Center of Excellence, which includes the Air Defense Artillery
9 School, the Field Artillery School, the Basic Officer Leaders Course, and the Noncommissioned
10 Officers Academy. The Fires Center of Excellence also includes Basic Combat Training,
11 Captains Career Course, Warrant Officer Basic Course, and numerous functional courses.
12 Approximately 11,049 students and trainees were assigned to Fort Sill at any given time in 2013.
13 Cumulative actions could include reduced training opportunities because of the force reductions
14 on Fort Sill. This could lead to further adverse impacts to socioeconomic conditions because of
15 reduced temporary population and visitors and the attendant economic activity, spending, and
16 jobs and income they support.

17 Under Alternative 1, the loss of approximately 6,800 Soldiers, in conjunction with other
18 reasonably foreseeable actions, would have significant impacts to employment, income, tax
19 receipts, housing values, and schools in the ROI.

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1 **4.23 Fort Stewart, Georgia**

2 **4.23.1 Introduction**

3 Fort Stewart was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population is discussed in Section 4.20.1 of the
 5 2013 PEA.

6 Fort Stewart’s 2011 baseline permanent party population was 18,647. In this SPEA, Alternative
 7 1 assesses a potential population loss of 16,000, including approximately 15,317 permanent party
 8 Soldiers and 683 Army civilians.

9 **4.23.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated for Fort Stewart; however, significant
 12 socioeconomic impacts are anticipated under Alternative 1—Implement Force Reductions. Table
 13 4.23-1 summarizes the anticipated impacts to VECs under each alternative.

14 **Table 4.23-1. Fort Stewart Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Negligible	Minor
Noise	Negligible	Beneficial
Soils	Minor	Negligible
Biological Resources	Negligible	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Minor
Traffic and Transportation	Minor	Beneficial

15 **4.23.3 Air Quality**

16 **4.23.3.1 Affected Environment**

17 The air quality affected environment of the Fort Stewart ROI remains the same as described in
 18 Section 4.20.2.1 of the 2013 PEA. The Fort Stewart area has not been designated as a
 19 nonattainment area for any criteria pollutants (EPA, 2013).

1 **4.23.3.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
4 emissions at current levels, as well as fugitive dust from training activities, would result in
5 minor, adverse impacts to air quality. Air quality impacts of the No Action Alternative for this
6 SPEA remain the same as described in the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor,
9 beneficial impacts to air quality because of reduced operations and maintenance activities and
10 reduced vehicle miles travelled associated with the facility. Impacts to air quality from the
11 further force reductions proposed under Alternative 1 would continue to be beneficial assuming a
12 corresponding decrease in operations and vehicle travel to and from Fort Stewart. The size of this
13 beneficial impact under Alternative 1 would be roughly double that anticipated at the time of the
14 2013 PEA.

15 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
16 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
17 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
19 quality regulations. Even if the full end-strength reductions were to be realized at Fort Stewart,
20 the Army would ensure that adequate staffing remains so that the installation would comply with
21 all mandatory environmental regulations.

22 **4.23.4 Airspace**

23 **4.23.4.1 Affected Environment**

24 The airspace affected environment for Fort Stewart remains the same as described in Section
25 4.20.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current
26 airspace requirements.

27 **4.23.4.2 Environmental Effects**

28 **No Action Alternative**

29 Force reductions under Alternative 1 are not expected to significantly alter Fort Stewart's use of
30 aviation assets or current airspace use. Restricted airspace would continue to be sufficient to
31 meet airspace requirements. Adverse impacts to airspace under Alternative 1 would
32 be negligible.

1 **Alternative 1—Implement Force Reductions**

2 The implementation of Alternative 1 would result in negligible impacts in line with those
3 presented in Section 4.20.3.2 of the 2013 PEA. However, there would be a slight change in
4 impacts in that the installation would require less activation of the SUA in support of ground
5 live-fire training activities; however, due to a growth in the fielding of UAS, there is an
6 increasing requirement for activation of airspace for UAS use. While Fort Stewart's ground
7 training activities still might require a less frequent activation of the existing SUA, this may be
8 offset by more frequent activation for UAS activity.

9 **4.23.5 Cultural Resources**

10 **4.23.5.1 Affected Environment**

11 The affected environment for Fort Stewart has changed since the completion of the 2013 PEA.
12 Since 2013, Fort Stewart has completed a revised ICRMP (Maggioni et al., 2014). The affected
13 environment for cultural resources, described below, was updated to be consistent with the
14 information provided in the ICRMP.

15 The Fort Stewart region has been occupied for at least 12,000 years by Native Americans,
16 Europeans, and the military (Maggioni et al., 2014). Most prehistoric sites at Fort Stewart consist
17 of habitation sites, base camps, small villages, seasonal use camps, hunting stations, and isolated
18 artifact scatters. Most historic period sites at Fort Stewart consist of homesites, agri-industrial
19 related activities, naval stores production and collection sites, and isolated artifact scatters.

20 Approximately 207,000 of the 280,000 acres of Fort Stewart have been surveyed for cultural
21 resources (Maggioni et al., 2014). As a result of these archaeological surveys, 3,966
22 archaeological sites and isolated finds have been recorded at Fort Stewart, of which 54 have been
23 recommended eligible and 274 potentially eligible for the NRHP. In addition to these
24 archaeological sites, 60 historic period cemeteries, 1 sacred site and 2 TCPs have been identified.

25 Fort Stewart has completed an architectural survey and evaluation of all buildings and structures
26 constructed before 1990 (to include Cold War Era buildings eligible under Criteria G of the
27 NRHP). As a result of this building survey, five buildings that have been determined eligible for
28 listing in the NRHP have been identified at Fort Stewart (Glisson's Mill Pond Store and four
29 Fire Towers).

30 A revised Programmatic Agreement between the 3rd ID (Mechanized), Fort Stewart, and the
31 SHPO was executed in 2011 and provides a streamlined process for Section 106 of the NHPA
32 compliance by the Army at Fort Stewart (Maggioni et al., 2014). The Programmatic Agreement
33 states that Fort Stewart will conduct archaeological surveys (if not previously conducted) to
34 identify any historic properties that could be affected by a project, activity, or undertaking. It also
35 provides a listing of undertakings excluded from evaluation under Section 106 (e.g.,

1 undertakings in severely disturbed special use and bivouac areas, most areas within the
2 cantonment, and impact areas that are highly likely to be contaminated with UXO). Standard
3 consultation under 36 CFR 800 is completed for all undertaking that have the potential to affect
4 historic properties.

5 **4.23.5.2 Environmental Effects**

6 **No Action Alternative**

7 Implementation of the No Action Alternative would result in negligible impacts to cultural
8 resources as described in Section 4.19.2.2 of the 2013 PEA. Activities with the potential to affect
9 cultural resources would continue to be monitored and regulated through the use of existing
10 agreements and/or preventative and minimization measures. No changes in effects are warranted
11 as a result of new information presented in the affected environment.

12 **Alternative 1—Implement Force Reductions**

13 As described in Section 4.17.4.2 of the 2013 PEA, Alternative 1 would have a minor impact on
14 cultural resources. No changes in effects are warranted as a result of new information presented
15 in the affected environment. The Army is committed to ensuring that personnel cuts will not
16 result in non-compliance with cultural resources regulations. Even if the full end-strength
17 reductions were to be realized at Fort Stewart, the Army would ensure that adequate staffing
18 remains so that the installation would comply with all mandatory environmental regulations.

19 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
20 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
21 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
22 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
23 necessary to vacate or demolish structures as a result of force reductions, the installation would
24 comply with applicable laws, such as NHPA, and conduct the necessary analyses and
25 consultation to avoid, minimize, and/or mitigate these effects.

26 This alternative could result in some beneficial effects as a decrease in training activities could
27 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
28 fewer people to support, there may be a reduction in the number of undertakings with the
29 potential to affect cultural resources.

30 **4.23.6 Noise**

31 **4.23.6.1 Affected Environment**

32 The noise affected environment of the Fort Stewart installation remains the same as described in
33 Section 4.20.5.1 of the 2013 PEA. Primary sources of noise at Fort Stewart include small arms
34 and large-caliber weapons firing.

1 **4.23.6.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA anticipated negligible impacts from noise, because noise generating activities at
4 the installation would continue at the same levels and intensity as historically experienced. Under
5 the No Action Alternative, negligible impacts to noise would continue.

6 **Alternative 1—Implement Force Reductions**

7 The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial
8 noise impacts, since there would be a reduction in the frequency of noise generating events. The
9 beneficial impacts to noise under Alternative 1 would be similar to those described in the
10 2013 PEA.

11 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
12 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
13 Fort Stewart, the Army would ensure that adequate staffing remains so that the installation would
14 comply with all mandatory environmental regulations including noise ordinances
15 and regulations.

16 **4.23.7 Soils**

17 **4.23.7.1 Affected Environment**

18 The soils affected environment on the installation remains the same as was discussed in Section
19 4.20.6.1 of the 2013 PEA.

20 **4.23.7.2 Environmental Effects**

21 **No Action Alternative**

22 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
23 anticipated from continuing training, to include impacts to soils from removal of or damage to
24 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
25 used in training events. Impacts under the No Action Alternative on Fort Stewart remain the
26 same as those discussed in Section 4.20.6.2 of the 2013 PEA.

27 **Alternative 1—Implement Force Reductions**

28 Under Alternative 1 of the 2013 PEA, negligible, potentially beneficial impacts to soils were
29 anticipated as a result of less use of training areas. A force reduction would result in less erosion,
30 soil compaction, and loss of vegetation, and allow for natural rest and recovery of the landscape.

1 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
2 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
3 potential impacts from these activities on soils are not analyzed.

4 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
5 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
6 Stewart, the Army would ensure that adequate staffing remains so that the installation would
7 comply with all mandatory regulations. Therefore, impacts under Alternative 1 at Fort Stewart
8 would be negligible and remain the same as those discussed in Section 4.20.6.2 of the 2013 PEA.

9 **4.23.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 10 **Species)**

11 **4.23.8.1 Affected Environment**

12 Fort Stewart is home to 11 special status plant species and 22 special status fauna species (Fort
13 Stewart, 2007). Among these species, seven ESA-listed fauna species are currently recorded as
14 occurring on the installation. This includes the West Indian manatee (*Trichechus manatus*),
15 which has only rarely been recorded in the Ogeechee River. Table 4.23-2 lists the threatened or
16 endangered species found on Fort Stewart. Two additional species, smooth coneflower and
17 Atlantic sturgeon (*Acipenser oxyrinchus*), have been added since 2013. Smooth coneflower was
18 a previously listed species but was only recently discovered on Fort Stewart. In contrast, Atlantic
19 sturgeon was known to exist on Fort Stewart, but the status was only recently changed to
20 endangered. These changes are reflected in Table 4.23-2.

21 Fort Stewart has an active forestry program, one of the largest in DoD. The forestry program is
22 responsible for timber thinning operations and regular application of prescribed fire on live-fire
23 ranges and training lands. Fort Stewart contains about 158,578 acres of upland forest, 82,148
24 acres of forested wetlands, and 38,253 acres of clearings. The installation contains Georgia's
25 largest remaining stand of longleaf pine forest. The longleaf pine/wiregrass ecosystem at Fort
26 Stewart is also highly compatible with military training. This compatibility stems from the
27 ecosystem's tolerance to such factors as fire, mechanical damage, and disease, as well as its
28 characteristic of open, park-like stands which are essential for visibility during
29 maneuver training.

1 **Table 4.23-2. Threatened or Endangered Species Found on Fort Stewart, and Federally**
 2 **Listed or Listed by the State of Georgia**

Common Name	Scientific Name	Federal Status	Georgia State Status
Plants			
Purple honeycomb head	<i>Baldunia atropurpurea</i>	--	Rare
Georgia plume	<i>Elliottia racemosa</i>	--	Threatened
Green-fly orchid	<i>Epidendrum magnolia</i>	--	Unusual
Dwarf witch-alder	<i>Fothergilla gardenia</i>	--	Threatened
Michaux's spider orchid	<i>Habenaria quinqueseta</i>	--	Threatened
Pond spice	<i>Litsea aestivalis</i>	--	Rare
Crestless plume orchid	<i>Pteroglossaspis ecristata</i>	--	Threatened
Hooded pitcher plant	<i>Sarracenia minor</i>	--	Unusual
Swamp buckthorn	<i>Sideroxylon thornei</i>	--	Rare
Silky camellia	<i>Stewartia malacodendron</i>	--	Rare
Smooth coneflower	<i>Echinacea laevigata</i>	Endangered	Endangered
Mammals			
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	--	Rare
West Indian manatee	<i>Trichechus manatus</i>	Endangered	Endangered
Birds			
Bachman's sparrow	<i>Aimophila aestivalis</i>	--	Rare
Bald eagle	<i>Haliaeetus leucocephalus</i>	-- ^a	Threatened
Wood stork	<i>Mycteria americana</i>	Endangered	Endangered
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered	Endangered
Swallow-tailed kite	<i>Elanoides forficatus</i>	--	Rare
Peregrine falcon	<i>Falco peregrinus</i>	--	Rare
Southeastern kestrel	<i>Falco sparverius paulus</i>	--	Rare
Least tern	<i>Sterna antillarum</i>	--	Rare
Reptiles and Amphibians			
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	Threatened	Threatened
Spotted turtle	<i>Clemmys guttata</i>	--	Unusual
Eastern indigo snake	<i>Drymarchon couperi</i>	Threatened	Threatened
Gopher tortoise	<i>Gopherus polyphemus</i>	Candidate	Threatened
Southern hognose snake	<i>Heterodon simus</i>	--	Threatened
Diamondback terrapin	<i>Malaclemys terrapin</i>	--	Unusual
Striped newt	<i>Notophthalmus perstriatus</i>	Candidate	Threatened

Common Name	Scientific Name	Federal Status	Georgia State Status
Mimic glass lizard	<i>Ophisaurus mimicus</i>	--	Rare
Gopher frog	<i>Rana capito</i>	--	Rare
Fish			
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered	Endangered
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Endangered	Endangered
Invertebrates			
Say's spiketail	<i>Cordulegaster sayi</i>	--	Threatened

^a As of August 8, 2007, the Bald Eagle is no longer afforded protection under the ESA; however, it is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Eagle Act is the primary law protecting eagles and protection is very similar to the ESA.

1 **4.23.8.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA analysis concluded that implementation of the No Action Alternative would
 4 result in negligible adverse impacts to biological resources and the affected environment would
 5 remain in its present state. Management of biological resources on Fort Stewart would continue
 6 in accordance with the current installation INRMP (Fort Stewart, 2007). Therefore, negligible
 7 adverse impacts would continue under the No Action alternative

8 **Alternative 1—Implement Force Reductions**

9 The 2013 PEA analysis concluded that the implementation of Alternative 1 in the 2013 PEA
 10 would result in beneficial impacts to biological resources on Fort Stewart. The Army anticipates
 11 that further proposed reduction in forces would not change this finding. Fewer personnel on Fort
 12 Stewart would result in reduced scheduling conflicts between training exercises and resource
 13 monitoring and management activities.

14 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
 15 natural resources regulations. Even if the full end-strength reductions were to be realized at Fort
 16 Stewart, the Army would ensure that adequate staffing remains so that the installation would
 17 comply with all mandatory environmental regulations.

18 **4.23.9 Wetlands**

19 **4.23.9.1 Affected Environment**

20 The wetlands affected environment on the installation remains the same as was discussed in
 21 Section 4.20.8.1 of the 2013 PEA.

1 **4.23.9.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were
4 anticipated from continued training schedules. Potential wetland impacts would be reviewed and
5 managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action
6 Alternative on Fort Stewart remain the same as those discussed in Section 4.20.8.2 of the
7 2013 PEA.

8 **Alternative 1—Implement Force Reductions**

9 Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result
10 of less use of tank roads, ranges, and training areas. Less sedimentation and vegetation loss were
11 anticipated, and degraded wetlands were expected to restore towards their reference functions
12 and values. Impacts to wetlands could conceivably occur if the further force reductions decreased
13 environmental staffing levels to a point where environmental compliance could not be properly
14 implemented. The Army is committed, however, to ensuring that personnel cuts will not result in
15 non-compliance with wetland regulations. Even if the full end-strength reductions were to be
16 realized at Fort Stewart, the Army would ensure that adequate staffing remains so that mandated
17 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
18 Fort Stewart would be beneficial and remain the same as those discussed in Section 4.20.8.2 of
19 the 2013 PEA.

20 **4.23.10 Water Resources**

21 **4.23.10.1 Affected Environment**

22 The affected environment for water resources on Fort Stewart remains the same as that described
23 in Section 4.20.9.1 of the 2013 PEA. There are no changes to surface water, water supply, and
24 wastewater resources.

25 **4.23.10.2 Environmental Effects**

26 **No Action Alternative**

27 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
28 Alternative due to the continued disturbance and pollution of surface waters from training
29 activities. Surface water impacts under the No Action Alternative would remain the same as
30 described in the 2013 PEA.

31 **Alternative 1—Implement Force Reductions**

32 Minor, beneficial impacts to water resources were anticipated from implementation of force
33 reductions in the 2013 PEA Alternative 1 because of reduced demand for potable water supply
34 and an increase in available wastewater treatment capacity. Reduction in training area use from

1 force reductions on Fort Stewart was also anticipated to potentially reduce impacts to surface
2 waters due to disturbance and spills. Increased force reductions under Alternative 1 of this SPEA
3 would continue to have the same beneficial impacts to water supplies, wastewater capacity, and
4 surface waters.

5 Adverse water resources impacts could conceivably occur if personnel cuts prevented
6 environmental compliance from being implemented. The Army is committed to ensuring that
7 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
8 end-strength reductions were to be realized at Fort Stewart, the Army would ensure that adequate
9 staffing remains so that mandated environmental requirements would continue to be met
10 and implemented.

11 **4.23.11 Facilities**

12 **4.23.11.1 Affected Environment**

13 The facilities affected environment of the Fort Stewart installation remains the same as described
14 in Section 4.20.9.1 of the 2013 PEA.

15 **4.23.11.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
18 impacts to facilities at Fort Stewart. For the current analysis, Fort Stewart would continue to use
19 its existing facilities and Fort Stewart's current facility shortfalls have been prioritized and are
20 seeking or have received Army funding. Impacts to facilities would remain the same as described
21 in the 2013 PEA.

22 **Alternative 1—Implement Force Reductions**

23 The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities
24 would occur on Fort Stewart. Under Alternative 1, implementation of the proposed further force
25 reductions would also result in overall minor, adverse impacts. Impacts would occur from the
26 fact that future, programmed construction or expansion projects may not occur or could be
27 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
28 may require modifications to existing facilities; and a greater number of buildings on the
29 installation may become vacant or underutilized due to reduced requirements for facilities, which
30 would have a negative impact on overall space utilization. Some beneficial impacts are also
31 expected as a result of force reductions as facilities may be re-designated to support units
32 remaining at Fort Stewart to provide more space and facilities that are better able to meet tenant
33 and Army needs. As discussed in Chapter 1, the demolition of existing buildings or placing them
34 in caretaker status as a result of the reduction in forces is not reasonably foreseeable and not part
35 of the scope of this SPEA; therefore, potential impacts from these activities are not analyzed.

1 **4.23.12 Socioeconomics**

2 **4.23.12.1 Affected Environment**

3 The Fort Stewart Military Reservation includes approximately 280,000 acres, making it the
4 largest military installation east of the Mississippi River. It is located approximately 41 miles
5 southwest of the city of Savannah. Fort Stewart and Hunter AAF together are the Army's world-
6 class training and military armored power projection combination on the eastern seaboard of the
7 U.S. Tank, field artillery, helicopter gunnery, and small arms ranges operate simultaneously
8 throughout the year with little time lost to bad weather.

9 Fort Stewart is primarily located in Liberty and Bryan counties, but also extends into smaller
10 portions of Evans, Long, and Tattnall counties. All of these counties are located in the state of
11 Georgia. The ROI for Fort Stewart in this analysis includes those areas that are generally
12 considered the geographic extent to which the majority of the installation's Soldiers, Army
13 civilians, contractor personnel, and their Families reside. All of the aforementioned counties are
14 included in ROI. Liberty County, which contains the city of Hinesville adjacent to the
15 installation, is the county that would be most affected by Army stationing actions. There are
16 additional counties, such as Bulloch, Chatham, Effingham, Glynn, McIntosh, and Wayne
17 counties, in which installation populations may also reside; however, the number of residents in
18 these counties is expected to be small. Therefore, these counties are not included in the ROI. The
19 vast majority of the population and economic impacts would be experienced within the ROI.

20 **Population and Demographics**

21 Using 2011 as a baseline, Fort Stewart has a total working population of 25,243 consisting of
22 active component Soldiers and Army civilians, students and trainees, other military services,
23 civilians and contractors. Of the total working population, 18,647 were permanent party Soldiers
24 and Army civilians. The population that lives on Fort Stewart consists of 3,661 Soldiers, 26
25 Army civilians, and an estimated 5,597 Family members, for a total on-installation resident
26 population of 9,284 (McKain, 2014). Finally, the portion of Soldiers, Army civilians, and Family
27 members living off the installation is estimated to be 37,669. Additionally, there are 159 students
28 and trainees associated with the installation.

29 In 2012, the population in the ROI was 149,896. The population in Bryan and Liberty counties
30 increased by 6.7 and 3.1 percent, respectively, between 2010 and 2012, while it increased by
31 11.9 percent during the same period in Long County. The population decreased in Evans and
32 Tattnall counties during this period by 2.8 and 0.8 percent, respectively (Table 4.23-3). The
33 racial and ethnic composition of the ROI is presented in Table 4.23-4 (U.S. Census
34 Bureau 2012a).

1 **Table 4.23-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Bryan County, Georgia	32,250	+6.7
Evans County, Georgia	10,691	-2.8
Liberty County, Georgia	65,461	+3.1
Long County, Georgia	16,170	+11.9
Tattnall County, Georgia	25,324	-0.8

2 **Table 4.23-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Georgia	77.9	13.1	1.2	5.1	2.4	16.9	55.1
Bryan County, Georgia	80.1	15.0	0.4	1.8	2.5	5.8	75.4
Evans County, Georgia	66.8	30.4	0.5	1.0	1.0	11.9	57.5
Liberty County, Georgia	51.1	41.0	0.8	2.3	4.3	11.5	43.0
Long County, Georgia	68.4	25.9	0.8	0.8	3.5	12.1	59.1
Tattnall County, Georgia	68.2	29.7	0.6	0.5	0.9	10.8	58.8

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Income**

5 Between 2000 and 2012, employment rose in all counties in the ROI with the exception of
 6 Liberty County, where employment remained constant. Tattnall County had the lowest median
 7 income among the counties in the ROI, approximately \$13,000 lower than the median income at
 8 the state level. Employment, median home value, household income, and population living
 9 below the poverty level are presented in Table 4.23-5 (U.S. Census Bureau, 2012b).

1 **Table 4.23-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Change in Employment 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Georgia	4,333,284	+11	\$156,400	\$49,604	17
Bryan County, Georgia	14,461	+29	\$189,100	\$63,818	12
Evans County, Georgia	4,345	+2	\$89,600	\$36,602	26
Liberty County, Georgia	29,472	0	\$126,800	\$44,295	18
Long County, Georgia	5,780	+28	\$102,700	\$40,044	21
Tattnall County, Georgia	8,164	+1	\$84,200	\$36,520	26

2 Information regarding the workforce by industry for each county within the ROI was obtained
 3 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 4 the employed labor force.

5 ***Bryan County, Georgia***

6 According to the U.S. Census Bureau, the educational services and health care and social
 7 assistance sector accounts for the greatest share of the total workforce in Bryan County (20
 8 percent). Retail trade is the second largest employment sector (12 percent), followed by
 9 manufacturing (10 percent). The construction and the arts, entertainment, and recreation, and
 10 accommodation and food services sectors also account for a significant share of the total
 11 workforce in Bryan County (8 percent each). The Armed Forces account for 6 percent of the
 12 Bryan County workforce. The remaining sectors account for 36 percent of the workforce in
 13 the county.

14 ***Evans County, Georgia***

15 The manufacturing sector accounts for the largest share of the total workforce in Evans County
 16 (20 percent). The educational services, and health care and social assistance services sector is the
 17 second largest source of employment (17 percent). Retail trade is the third largest employment
 18 sector (13 percent), followed by the agriculture, forestry, fishing and hunting, and mining
 19 services sector (9 percent). The Armed Forces account for less than 1 percent of the Evans
 20 County workforce. The remaining nine sectors employ 41 percent the workforce.

1 **Liberty County, Georgia**

2 The primary source of employment in Liberty County is the Armed Forces (22 percent). Public
3 Administration is the second largest employment sector (15 percent), followed by the
4 educational services, and health care and social assistance sector (14 percent). Retail trade also
5 accounts for a significant share of the total workforce in Liberty County (10 percent). The
6 remaining 10 sectors employ 39 percent of the workforce.

7 **Long County, Georgia**

8 The public administration sector is the primary source of employment in Long County (15
9 percent). The educational services, and health care and social assistance services sector is the
10 second largest employment sector (11 percent), followed by the Armed Forces and the arts,
11 entertainment, and recreations, and accommodation and food services (10 percent each). The
12 remaining 10 sectors employ 54 percent of the workforce.

13 **Tattnall County, Georgia**

14 The primary source of employment in Tattnall County is the educational services, and health
15 care and social assistance services sector (18 percent). Manufacturing is the second largest
16 employment sector (12 percent), followed by public administration (11 percent). Retail trade also
17 accounts for a significant share of the total workforce (10 percent). The Armed Forces account
18 for less than 1 percent of the Tattnall County workforce. The remaining sectors employ 51
19 percent of the workforce.

20 **Housing**

21 There are 3,630 permanent military Family units on Fort Stewart and 6,435 spaces in barracks on
22 the installation. Additionally, there are 334 single NCO and officer quarters on the installation
23 (McKain, 2014).

24 **Schools**

25 As described in the 2013 PEA, DoD schools located on the installation educated 606 students in
26 kindergarten through grade 6, while 4,188 students in kindergarten through grade 6 attended
27 schools off the installation within Liberty, Long, Evans, and Bryan counties (no students
28 attended schools in Tattnall County). DoD schools on the installation included Brittin
29 Elementary, Diamond Elementary, and Kessler Elementary schools. All students in grades 7 to
30 12 attend schools off the installation.

31 **Public Health and Safety**

32 **Police Services**

33 The Fort Stewart Military Police oversee police operations, patrol installation property, provide
34 ACP/gate protection and protection of life and property, conduct investigations, regulate traffic,

1 provide crowd control, and perform other public safety duties. City, county, and state police
2 departments provide law enforcement in the ROI.

3 **Fire and Emergency Services**

4 The Fort Stewart Fire Department responds to emergencies involving structures, facilities,
5 transportation equipment, hazardous materials, and natural and man-made disasters; directs fire
6 prevention activities; and conducts public education programs. Services include providing fire
7 safety advice and insuring that structures are equipped with adequate fire precautions to ensure
8 that in the event of fire, people can safely evacuate the premises unharmed.

9 **Medical Facilities**

10 Winn Army Community Hospital and Lloyd C. Hawks Troop Medical Hospital serve Fort
11 Stewart. Clinics provide health services for active component and retired military personnel and
12 their Families on Fort Stewart. Dental services are also available at three dental clinics on the
13 installation. These facilities service active component personnel and their Family members, as
14 well as retirees and their Family members. Off the installation, Liberty Regional Medical Center
15 in Hinesville provides the nearest health care facility.

16 **Family Support Services**

17 The FMWR provides a wide range of facilities for promoting social and emotional well-being of
18 military/civilian service personnel and their Families. The Fort Stewart ACS office within
19 FMWR assists in maintaining the readiness of individuals, Families, and communities within the
20 Army by developing, coordinating, and delivering services which promote self-reliance,
21 resiliency, and stability during war and peace. Programs offered include the Army Family Action
22 Plan, Family Advocacy Program, Survivor Outreach Service, and Warriors in Transition.

23 **Recreation Facilities**

24 Recreation facilities on Fort Stewart are managed by the FMWR and include areas for
25 swimming, boating, hiking, hunting, and fishing. Fort Stewart has allowed the public access to
26 installation lands for hunting and fishing since 1959. In general, any hunting or fishing area not
27 closed for military use is open to the public with appropriate permits and restrictions.

28 **4.23.12.2 Environmental Effects**

29 **No Action Alternative**

30 Fort Stewart's operations would continue to benefit regional economic activity. No additional
31 impacts to population, housing, public and social services, public schools, public safety, or
32 recreational activities are anticipated.

1 Alternative 1—Implement Force Reductions

2 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
 3 significant impact to socioeconomic resources. The description of impacts to the various
 4 components of socioeconomics is presented below.

5 Population and Economic Impacts

6 Alternative 1 would result in the loss of 16,000²⁹ Army positions (15,317 Soldiers and 683 Army
 7 civilians), with an average annual income of \$46,760 and \$56,723, respectively. In addition, this
 8 alternative would affect an estimated 24,288 Family members (8,928 spouses and 15,360
 9 children). The total number of military employees and their Family members who may be
 10 directly affected by Alternative 1 is projected to be 40,288.

11 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 12 forecasted economic impact value falls outside the historical positive or negative ranges. Table
 13 4.23-6 shows the deviation from the historical average that would represent a significant change
 14 for each parameter. The last row summarizes the deviation from the historical average for the
 15 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 16 by the EIFS model. Based on the EIFS analysis, changes in sales, income, employment and
 17 population in the ROI under Alternative 1 fall outside the historical range and are categorized as
 18 a significant impact.

19 **Table 4.23-6. Economic Impact Forecast System and Rational Threshold Value**
 20 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	8.4	5.7	18.4	4.7
Economic contraction significance value	-8.1	-5.8	-7.4	-2.6
Forecast value	-16.9	-19.7	-36.7	-27.6

21 Table 4.23-7 summarizes the predicted impacts to income, employment, and population of the
 22 reductions against the 2012 demographic and economic data. Whereas the forecast value
 23 provides a percent change from the historical average, the percentages in the following table
 24 show the economic impact as a percent of 2012 demographic and economic data. Although not
 25 in exact agreement with the EIFS forecast values, these figures show the same significance
 26 determinations as the EIFS predictions in the previous table.

²⁹ This number was derived by assuming the loss of two BCTs, 60 percent of Fort Stewart’s non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 **Table 4.23-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$853,849,000	-17,757 (Direct)	-40,288
		-1,181 (Induced)	
		-18,938 (Total)	
Total 2012 ROI economic estimates	\$4,613,724,000	62,222	149,896
Percent reduction of 2012 figures	-18.5	-30.4	-26.9

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 With a potential reduction in the population in the ROI, losses in sales, income, employment, and
 6 tax receipts would occur over a period until 2020. The EIFS estimates were analyzed based on
 7 total cumulative force reductions. Because of the maximum potential loss of 16,000 Soldiers and
 8 Army civilians under Alternative 1, EIFS estimates an additional 1,757 direct contract service
 9 jobs would also be lost. An additional 1,181 induced jobs would be lost because of the reduction
 10 in demand for goods and services within the ROI. Total reduction in employment is estimated to
 11 be 18,938, a significant reduction of 30.4 percent of the total employed labor force in the ROI of
 12 62,222. Income is estimated to be reduced by \$853.9 million, a significant decrease of 18.5
 13 percent from 2012.

14 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$639.6 million.
 15 There would also be a loss in sales tax receipts to local and state governments. The state and
 16 average local sales tax for Georgia is 7.0 percent (Tax Foundation, 2014). To estimate sales tax
 17 reductions, information was utilized on the proportion of sales that would be subject to sales
 18 taxes on average across the country. According to the U.S. Economic Census, an estimated 16
 19 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
 20 This percentage and applicable tax rate was applied to the estimated decrease in sales of \$639.6
 21 million, resulting in an estimated sales tax receipts decrease of \$7.2 million under Alternative 1.

22 Of the 149,896 people (including those residing on Fort Stewart) who live within the ROI,
 23 16,000 military employees and 24,288 Family members are predicted to no longer reside in the
 24 area under Alternative 1, resulting in a significant population reduction of 26.9 percent. This
 25 number could overstate potential population impacts because some of the people no longer
 26 employed by the military could continue to live and work within the ROI, finding employment in
 27 other industry sectors. However, due to the rural nature of the area and Fort Stewart as a
 28 dominant employer and economic driver of the ROI, most displaced forces may move out of the
 29 area to seek other opportunities with the Army or elsewhere. There are few employing sectors in
 30 the ROI to absorb displaced military employees. A small number of displaced personnel may

1 seek and find work within the ROI; however, others may not be able to find new employment
2 with possible implications for the unemployment rate.

3 This analysis indicates that Fort Stewart's community, and particularly Liberty, Bryan, Tattnall,
4 Long, and Evans counties, would experience significant, adverse socioeconomic impacts, as the
5 predicted impacts to each economic parameter evaluated are well outside the realm of historical
6 economic fluctuations.

7 **Housing**

8 The population reduction that would result under Alternative 1 would decrease housing demand
9 and increase housing availability on the installation and across the larger ROI, which would
10 likely lead to a reduction in median home values.

11 **Schools**

12 Reduction of 16,000 Soldiers and Army civilians would result in a reduction of 24,288 Family
13 members, of which 15,360 would be children. It is anticipated that both schools on the
14 installation and within school districts in Liberty, Long, Evans, and Bryan counties would be
15 impacted under Alternative 1. School districts with larger portions of military children in
16 proximity to Fort Stewart would be more affected than those with fewer military students. If
17 enrollment in individual schools declines significantly, schools may need to reduce the number
18 of teachers, administrators, and other staff, and potentially close or consolidate with other
19 schools within the same school district should enrollment fall below sustainable levels.

20 The reduction of Soldiers on Fort Stewart would result in a loss of Federal Impact Aid dollars in
21 the ROI. The amount of Federal Impact Aid a district receives is based on the number of students
22 who are considered "federally connected" and attend district schools. Actual projected dollar
23 amounts cannot be determined at this time due to the variability of appropriated dollars from
24 year to year, and the uncertainty of actual number of affected school-age children. School
25 districts in the ROI would likely need fewer teachers and materials as enrollment drops, which
26 would partially offset the reduced Federal Impact Aid. The loss of approximately 15,360
27 children will decrease the amount of Federal Impact Aid dollars being provided to these schools.
28 Overall, adverse impacts to schools under Alternative 1 would be minor to significant depending
29 on the reduction in the number of military-connected students attending specific schools.

30 **Public Services**

31 The demand for law enforcement, medical care providers, and fire and emergency service
32 providers on the installation may decrease if Soldiers, Army civilians, and their Family members
33 affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public services
34 could conceivably occur if personnel cuts were to substantially affect hospitals, military police,
35 and fire and rescue crews on the installation. These scenarios are not reasonably foreseeable,
36 however, and therefore are not analyzed. Regardless of any drawdown in military or civilian

1 personnel, the Army is committed to meeting health and safety requirements. Overall, minor
2 impacts to public health and safety would occur under Alternative 1. The impacts to public
3 services are not expected to be significant because the existing service level for the installation
4 and the ROI would still be available.

5 **Family Support Services and Recreation Facilities**

6 Family Support Service and recreation facilities would experience reduced demand and use and
7 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
8 committed to meeting the needs of the remaining population on the installation. As a result,
9 minor impacts to Family Support Services and recreation facilities would occur under
10 Alternative 1.

11 **Environmental Justice and Protection of Children**

12 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
13 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
14 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
15 and adverse human health or environmental effects of its programs, policies, and activities on
16 minority and low-income populations” (EPA, 1994). The racial and ethnic composition of the
17 ROI differs from that of the state, with higher proportions of African Americans in Evans,
18 Liberty, Long, and Tattnall counties than in the state as a whole. Additionally, there are higher
19 proportions of poverty populations in all of the ROI counties with the exception of Bryan County
20 when compared to the state’s proportions of these populations. Because minority or poverty
21 populations are more heavily concentrated in the ROI, Alternative 1 has the potential to result in
22 adverse impacts to minority or poverty-owned and/or -staffed businesses if Soldiers and Army
23 civilians directly affected under Alternative 1 move to areas outside the ROI. However, these
24 populations would not be disproportionately affected under Alternative 1.

25 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
26 federal agencies are required to identify and assess environmental health and safety risks that
27 may disproportionately affect children and to ensure that the activities they undertake do not
28 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
29 were to be realized, the Army is committed to implementing required environmental compliance
30 and meeting the health and safety needs of the people associated with the installation, including
31 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
32 environmental health and safety risks to children within the ROI. Additionally, this analysis
33 evaluates the effects associated with workforce reductions only, and any subsequent actions on
34 the installation that may require ground-disturbing activities that have the potential to result in
35 environmental health and safety risks to children, such as demolishing vacant buildings, is
36 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
37 as appropriate.

1 **4.23.13 Energy Demand and Generation**

2 **4.23.13.1 Affected Environment**

3 The energy demand and generation affected environment of the Fort Stewart installation remains
4 the same as described in Section 4.20.12.1 of the 2013 PEA.

5 **4.23.13.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
8 impacts to energy demand and generation at Fort Stewart. For the current analysis, Fort Stewart
9 would continue to draw similar amounts of energy from its utility providers with the same
10 requirements for energy and maintenance of infrastructure so impacts would remain the same as
11 described in the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
14 demand and generation would occur on Fort Stewart. Under Alternative 1, minor, beneficial
15 impacts to energy are anticipated due to a further reduction in energy consumption associated
16 with the additional force reductions. The installation would also be better positioned to meet
17 energy and sustainability goals.

18 **4.23.14 Land Use Conflicts and Compatibility**

19 **4.23.14.1 Affected Environment**

20 Consisting of 262,000 acres, Fort Stewart's range and training land infrastructure support
21 Abrams tanks, Bradley fighting vehicles, aerial gunnery, artillery, and other live-fire training;
22 maneuver training; and individual team tasks and collective tasks. Fort Stewart has not had
23 incompatible development and use conflicts preventing new construction or training. Sensitive
24 environmental areas are marked in the field and Soldiers are briefed on these restrictions prior to
25 entering the field. All warfighting functions tasks can be accomplished to standard on the Fort
26 Stewart training complex with minimal restrictions and workarounds. Range Support Operations
27 estimates about 554,472 Soldier training days are scheduled annually on the range and training
28 areas of Fort Stewart for mounted and dismounted individual weapons, crew qualifications and
29 maneuver training.

30 Establishment of a conservation buffer through the Fort Stewart ACUB program has reduced the
31 risk of incompatible development near the installation and provides for conservation of natural
32 resources on a regional scale. The installation and its partners have been working to prevent
33 incompatible development on about 127,000 acres surrounding Fort Stewart primarily through
34 the acquisition or donation of conservation easements. Fort Stewart maintains active ACUB and

1 JLUS programs, working with local community partners to protect natural resources and sustain
2 military operations. Common goals are to minimize rural land conversion to dense residential
3 development around the installation, utilizing a variety of methods (depending on property
4 owners' objectives), and to encourage compatible development. As of February 2013, the Fort
5 Stewart ACUB program has protected more than 22,000 acres.

6 **4.23.14.2 Environmental Effects**

7 **No Action Alternative**

8 The 2013 PEA concluded that no changes to land use conditions would occur and no impacts are
9 anticipated. Under the No Action Alternative, there would continue to be no impacts to land use
10 at Fort Stewart.

11 **Alternative 1—Implement Force Reductions**

12 The 2013 PEA concluded that the force reductions at Fort Stewart would result in minor,
13 beneficial impacts to land use, since a reduction in training activities would allow more
14 opportunities for other land uses such as ecosystem management or recreational activities. Under
15 Alternative 1, impacts to land use would be similar to those described in the 2013 PEA.

16 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
17 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
18 at Fort Stewart, the Army would ensure that adequate staffing remains so that the installation
19 would comply with all mandatory environmental regulations including land use ordinances
20 and regulations.

21 **4.23.15 Hazardous Materials and Hazardous Waste**

22 **4.23.15.1 Affected Environment**

23 As described in the 2013 PEA, hazardous materials are used on Fort Stewart. This includes
24 hazardous materials and waste from USTs and ASTs, pesticides, LBP, asbestos, PCBs, radon,
25 and UXO. Fort Stewart operates under a HWMP. Army policy is to substitute toxic and
26 hazardous materials for nontoxic and nonhazardous ones; ensure compliance with local, state,
27 and federal hazardous waste requirements; and ensure the use of waste management practices
28 that comply with all applicable requirements pertaining to generation, treatment, storage,
29 disposal, and transportation of hazardous wastes. The program reduces the need for corrective
30 action through controlled management of solid and hazardous waste. No substantial changes
31 have occurred to the affected environment since 2013.

1 **4.23.15.2 Environmental Effects**

2 **No Action Alternative**

3 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
4 Use of hazardous materials and generation of hazardous wastes would continue on Fort Stewart
5 in accordance with all applicable laws, regulations and plans.

6 **Alternative 1—Implement Force Reductions**

7 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from
8 hazardous materials and hazardous waste would occur on Fort Stewart. Alternative 1 in this
9 SPEA is not expected to involve major changes to the installation operations or types of
10 activities conducted on Fort Stewart. Because of the reduced numbers of people, it is likely that
11 the potential for spills would be reduced further during training and maintenance activities. The
12 volume of waste generated and material requiring storage would increase slightly because
13 deactivating units would turn in hazardous material for storage to avoid transportation risks.
14 Under Alternative 1 in this SPEA, Fort Stewart would continue to implement its hazardous waste
15 management in accordance with its HWMP and applicable regulations and therefore, adverse
16 impacts would be minor.

17 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
18 environmental compliance from being implemented. The Army is committed to ensuring that
19 personnel cuts will not result in non-compliance with regulations governing the handling,
20 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
21 Even if the full end-strength reductions were to be realized at Fort Stewart, the Army would
22 ensure that adequate staffing remains so that the installation would comply with all mandatory
23 environmental regulations.

24 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
25 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
26 therefore, potential impacts from these activities are not analyzed.

27 **4.23.16 Traffic and Transportation**

28 **4.23.16.1 Affected Environment**

29 The transportation affected environment of the Fort Stewart ROI remains the same as described
30 in Section 4.20.15.1 of the 2013 PEA.

1 **4.23.16.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Although
4 basically adequate, the system is congested. Some delays at main ACPs would continue resulting
5 in continued minor, adverse impacts, though recommended traffic intersection improvements
6 would be implemented to improve operations.

7 **Alternative 1—Implement Force Reductions**

8 The 2013 PEA concluded that the force reductions at Fort Stewart would result in beneficial
9 impacts to traffic and transportation systems. As fewer Soldiers and their Family members are
10 left on the installation, traffic congestion would diminish and traffic LOS would improve on the
11 installation and in neighboring communities. As noted in the 2013 PEA, delays at ACPs during
12 peak hours would also decrease. These beneficial impacts would continue under Alternative 1,
13 but with a further reduction in forces, the size of this beneficial impact under Alternative 1 would
14 be larger than anticipated at the time of the 2013 PEA.

15 **4.23.17 Cumulative Effects**

16 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
17 realignment at Fort Stewart consist of five counties in Georgia: Liberty, Bryan, Evans, Long, and
18 Tattnall counties. Section 4.20.16 of the 2013 PEA noted numerous planned or proposed actions
19 within the ROI that reasonably could be initiated within the next 5 years and would have the
20 potential to cumulatively add impacts to Alternative 1. A number of the Army's proposed
21 projects have been previously identified in the installation's Real Property Master Planning
22 Board and are programmed for future execution. No additional actions have been identified
23 beyond those noted in the cumulative effects analysis of the 2013 PEA.

24 **Reasonably Foreseeable Future Projects on Fort Stewart**

25 In addition to the reasonably foreseeable future projects disclosed in the 2013 PEA, the Army is
26 also proposing a partnership with Georgia Power Company to install solar photovoltaic arrays at
27 Fort Stewart. Fort Stewart is currently conducting NEPA analysis to evaluate potential impacts
28 of siting, constructing, and operating a photovoltaic array on its lands.

1 **Reasonably Foreseeable Future Projects outside Fort Stewart**

2 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
3 future projects outside Fort Stewart which would be appropriate for inclusion in the cumulative
4 impacts analysis. However, there are other projects and actions that affect regional economic
5 conditions and generally include construction and development activities, infrastructure
6 improvements, and business and government projects and activities. Additionally, smaller, less
7 diversified economies will be more vulnerable to the force reductions and provide fewer
8 opportunities to displaced Army employees.

9 ***No Action Alternative***

10 The cumulative effects due to the No Action Alternative are essentially the same as was
11 determined in the 2013 PEA, and will be negligible through minor and adverse. Current
12 socioeconomic conditions would persist within the ROI, and the No Action Alternative would
13 not contribute to any changes.

14 ***Alternative 1—Implement Force Reductions***

15 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
16 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Stewart is
17 anticipated to be significant and adverse for socioeconomics with impacts ranging from minor,
18 adverse to beneficial for the other resources.

19 The socioeconomic impact under Alternative 1, as described in Section 4.23.12.2 with a loss of
20 16,000 Soldiers and Army civilians, could lead to significant impacts to population, the regional
21 economy, schools, and housing, specifically in the ROI city of Hinesville, Georgia. Fort Stewart
22 has long been an economic driver of the region, employing almost 19,000 Soldiers and civilian
23 employees within the ROI. The relatively smaller economy of the ROI depends on the
24 installation's employment and economic activity. Specifically, in Liberty and Long counties, the
25 Armed Forces account for 22 and 10 percent of the workforce, respectively, demonstrating the
26 importance of the installation to employment opportunities in the ROI. With fewer opportunities
27 for employment, the ROI would likely not be able absorb many of the displaced forces, with
28 additional adverse impacts.

29 Additionally, non-federal investments have been made by private companies and local
30 communities to support Army installations. With decreased population, employment, spending,
31 and economic activity within the ROI, additional financial burden may be placed on companies,
32 communities, and institutions, with implications for the provision of services and viability of
33 operations. In addition, adverse impacts to multiple regional community services and schools are
34 anticipated because they receive funding, support, time, donations, and tax revenue directly
35 related to the number of military authorizations and the number of Family members. These
36 cumulative adverse impacts to the regional economy would contribute to more significant,
37 adverse impacts under Alternative 1.

1 Stationing changes would affect regional economic conditions through the loss or gain of jobs
2 and income within the region. Military personnel spend their money in the ROI economy,
3 supporting additional jobs, income, taxes, and sales impacts. Under Alternative 1, the loss of
4 16,000 Soldiers, in conjunction with other reasonably foreseeable actions, would have significant
5 impacts to population, employment, income, tax receipts, housing values, and schools in
6 the ROI.

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1 **4.24 Fort Wainwright, Alaska**

2 **4.24.1 Introduction**

3 Fort Wainwright was analyzed in the 2013 PEA. Background information on the installation,
 4 including location, tenants, mission, and population, is discussed in Section 4.21.1 of the
 5 2013 PEA.

6 Fort Wainwright’s 2011 baseline permanent party population was 7,430. In this SPEA,
 7 Alternative 1 assesses a potential population loss of 5,800, including approximately 5,485
 8 permanent party Soldiers and 326 Army civilians.

9 **4.24.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated for Fort Wainwright; however,
 12 significant socioeconomic impacts are anticipated under Alternative 1—Implement Force
 13 Reductions. Table 4.24-1 summarizes the anticipated impacts to VECs under each alternative.

14 **Table 4.24-1. Fort Wainwright Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Minor	Beneficial
Cultural Resources	Significant, but Mitigable	Significant, but Mitigable
Noise	Minor	Beneficial
Soils	Minor	Negligible
Biological Resources	Minor	Minor
Wetlands	Minor	Minor
Water Resources	Minor	Minor
Facilities	Negligible	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Negligible	Beneficial
Hazardous Materials and Hazardous Waste	Negligible	Negligible
Traffic and Transportation	Minor	Beneficial

1 **4.24.3 Air Quality**

2 **4.24.3.1 Affected Environment**

3 The air quality affected environment of the Fort Wainwright ROI remains the same as described
4 in Section 4.21.2.1 of the 2013 PEA. A portion of the Fairbanks North Star Borough (FNSB) has
5 been designated a nonattainment area for the 2006 fine particulate matter (PM_{2.5}) standard. The
6 Fort Wainwright area has not been designated as a nonattainment area for any other criteria
7 pollutants (EPA, 2013).

8 **4.24.3.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
11 emissions at current levels would result in minor, short- and long-term, adverse impacts to air
12 quality. Air quality impacts of the No Action Alternative for this SPEA remain the same as
13 described in the 2013 PEA.

14 **Alternative 1—Implement Force Reductions**

15 The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial
16 impacts to air quality due to reduced operations and maintenance activities and reduced vehicle
17 miles travelled associated with the facility. Impacts to air quality from the further force
18 reductions proposed under Alternative 1 would continue to be beneficial assuming a
19 corresponding decrease in operations and vehicle travel to and from Fort Wainwright. The size
20 of this beneficial impact under Alternative 1 would be slightly larger than at the time of the
21 2013 PEA.

22 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
23 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
24 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

25 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
26 quality regulations. Even if the full end-strength reductions were to be realized at Fort
27 Wainwright, the Army would ensure that adequate staffing remains so that the installation would
28 comply with all mandatory environmental regulations.

29 **4.24.4 Airspace**

30 **4.24.4.1 Affected Environment**

31 The airspace affected environment for Fort Wainwright remains the same as described in Section
32 4.21.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the current airspace
33 requirements.

1 **4.24.4.2 Environmental Effects**

2 **No Action Alternative**

3 Impacts to Fort Wainwright under the No Action Alternative remain minor, as described in
4 Section 4.17.3.2 of the 2013 PEA. Fort Wainwright would maintain existing airspace operations.

5 **Alternative 1—Implement Force Reductions**

6 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace
7 would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force
8 reductions would increase the beneficial impacts. Beneficial impacts are anticipated to occur as a
9 result of a slightly lower utilization and requirements for airspace use, including the requirement
10 for SUA from training involving the use of munitions, weapons systems, and ranges that would
11 occur at reduced levels and subsequently adverse impacts associated with closures of certain
12 SUA would be reduced and would result in beneficial impacts.

13 **4.24.5 Cultural Resources**

14 **4.24.5.1 Affected Environment**

15 The affected environment for cultural resources at Fort Wainwright has not changed since 2013,
16 as described in Section 4.21.4 of the 2013 PEA. However, an updated management plan has been
17 drafted since the 2013 PEA and is currently being implemented.

18 **4.24.5.2 Environmental Effects**

19 **No Action Alternative**

20 Section 4.21.4.2 of the 2013 PEA describes the effects of the No Action Alternative as
21 significant but mitigable. There has been no change in the affected environment since the
22 publication of the 2013 PEA that would result in a different impact to cultural resources. All
23 activities with the potential to affect cultural resources would continue to be monitored and
24 regulated through the use of existing agreements and/or preventative and minimization measures.

25 **Alternative 1—Implement Force Reductions**

26 Alternative 1 of this SPEA would have a significant but mitigable impact on cultural resources as
27 similarly described in Section 4.21.4.2 of the 2013 PEA. The effects of this alternative are
28 similar to the No Action—the reduction of forces at Fort Wainwright would not result in a
29 change to the existing conditions, which are analyzed in the no action. Therefore, if current
30 operations are having a significant but mitigable impact on cultural resources, the potential
31 reduction in forces proposed in Alternative 1 would not alter those impacts.

32 Additionally, the Army is committed to ensuring that personnel cuts will not result in non-
33 compliance with cultural resources regulations. Even if the full end-strength reductions were to

1 be realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the
2 installation would comply with all mandatory environmental regulations.

3 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
4 caretaker status as a result of force reductions is not reasonably foreseeable and not part of the
5 scope of this SPEA. Therefore, potential impacts to subsurface archaeological sites and historic
6 structures from these activities are not analyzed. If future site-specific analysis indicates that it is
7 necessary to vacate or demolish structures as a result of force reductions, the installation would
8 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
9 consultation to avoid, minimize, and/or mitigate these effects.

10 This alternative could result in some beneficial effects as a decrease in training activities could
11 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
12 fewer people to support, there may be a reduction in the number of undertakings with the
13 potential to affect cultural resources.

14 **4.24.6 Noise**

15 **4.24.6.1 Affected Environment**

16 The noise affected environment of the Fort Wainwright installation remains the same as
17 described in Section 4.21.5.1 of the 2013 PEA. Primary sources of noise at Fort Wainwright
18 include aviation activity and small arms live-fire training and qualification as well as large
19 caliber weapon systems training.

20 **4.24.6.2 Environmental Effects**

21 **No Action Alternative**

22 The 2013 PEA anticipated minor impacts from noise, which would represent no change to
23 current frequencies or intensities of noise generating activities. Under the No Action Alternative,
24 minor impacts to noise at Fort Wainwright are expected to continue.

25 **Alternative 1—Implement Force Reductions**

26 The 2013 PEA concluded that the force reductions at Fort Wainwright would result in beneficial
27 noise impacts, since there would be a reduction in the frequency of noise generating events. The
28 beneficial impacts under Alternative 1 would be similar to those described under the 2013 PEA.

29 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
30 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
31 Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation
32 would comply with all mandatory environmental regulations including noise ordinances
33 and regulations.

1 **4.24.7 Soils**

2 **4.24.7.1 Affected Environment**

3 The soils affected environment on the installation remains the same as was discussed in Section
4 4.21.6.1 of the 2013 PEA.

5 **4.24.7.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to soils were
8 anticipated from continuing training, to include impacts to soils from removal of or damage to
9 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
10 used in training events. Impacts under the No Action Alternative on Fort Wainwright remain the
11 same as those discussed in Section 4.21.6.2 of the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result
14 of demolition of no longer needed facilities leading to temporary exposure of bare soils and their
15 subsequent erosion from wind and rain. As discussed in Chapter 1, the potential demolition of
16 existing buildings as a result of force reductions is not reasonably foreseeable and not part of the
17 scope of this SPEA; therefore, potential impacts from these activities on soils are not analyzed.
18 Further forces reductions (Alternative 1 of this SPEA) would result in less erosion, soil
19 compaction, and loss of vegetation; thus impacts under Alternative 1 would be negligible.

20 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
21 regulations affecting soils. Even if the full end-strength reductions were to be realized at Fort
22 Wainwright, the Army would ensure that adequate staffing remains so that the installation would
23 comply with all mandatory environmental regulations. Therefore, impacts under Alternative 1 at
24 Fort Wainwright would be beneficial and remain the same as those discussed in Section 4.21.6.2
25 of the 2013 PEA.

26 **4.24.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered
27 Species)**

28 **4.24.8.1 Affected Environment**

29 The affected environment on Fort Wainwright is characterized by four dominant vegetation
30 types: moist tundra; treeless bogs and fens; open, low-growing spruce forests; and closed spruce-
31 hardwood forests which is home to variety of mammals and avian species. No federally listed
32 threatened and endangered species are present on Fort Wainwright although a number of species
33 of concern have been identified. A detailed description of the affected environment on Fort
34 Wainwright and a complete list of species of concern are presented in Section 4.21.7.1 of the

1 2013 PEA. No changes have occurred to the affected environment since 2013. However, an
2 updated management plan has been drafted since the 2013 PEA and is currently being
3 implemented (Fort Wainwright, 2013).

4 **4.24.8.2 Environmental Effects**

5 **No Action Alternative**

6 Implementation of the No Action Alternative would result in minor, adverse impacts to
7 biological resources. Biological resources on Fort Wainwright would continue to be managed in
8 accordance with the current installation INRMP to further minimize and monitor any potential
9 impacts (Fort Wainwright, 2013).

10 **Alternative 1—Implement Force Reductions**

11 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to
12 biological resources would occur on Fort Wainwright as the proposed reduction in staff would
13 change the types of activities conducted on Fort Wainwright, but would only reduce the
14 frequency and intensity. Therefore, disturbances to the biological environment as a result of
15 current activities would continue to some degree. Fort Wainwright anticipates that further
16 proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding.
17 However, a reduction in personnel and training activities would further reduce scheduling
18 conflicts and increase the ease of conducting resource monitoring and proactive conservation
19 activities. The Army is committed to ensuring that personnel cuts will not result in non-
20 compliance with natural resources regulations. Even if the full end-strength reductions were to be
21 realized at Fort Wainwright, the Army would ensure that adequate staffing remains so that the
22 installation would comply with all mandatory environmental regulations.

23 **4.24.9 Wetlands**

24 **4.24.9.1 Affected Environment**

25 The wetlands affected environment on the installation remains the same as was discussed in
26 Section 4.21.8.1 of the 2013 PEA.

27 **4.24.9.2 Environmental Effects**

28 **No Action Alternative**

29 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were
30 anticipated from continued training schedules, sedimentation, and construction. Potential wetland
31 impacts would be reviewed and managed to be avoided, to the extent practicable, or mitigated.
32 Impacts under the No Action Alternative on Fort Wainwright remain the same as those discussed
33 in Section 4.21.8.2 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1 of the 2013 PEA, minor, adverse impacts to wetlands were anticipated as a
3 result of facilities deconstruction and the potential to create sedimentation into wetlands. RVs
4 would continue to create impacts to wetlands. Training ranges were designed to avoid significant
5 wetland impacts; therefore, a reduction in training would not have any change on the impacts to
6 wetlands on the installation. Impacts to wetlands could conceivably occur if the further force
7 reductions decreased environmental staffing levels to a point where environmental compliance
8 could not be properly implemented. The Army is committed, however, to ensuring that personnel
9 cuts will not result in non-compliance with wetland regulations. Even if the full end-strength
10 reductions were to be realized at Fort Wainwright, the Army would ensure that adequate staffing
11 remains so that mandated environmental requirements would continue to be met. Impacts under
12 Alternative 1 at Fort Wainwright would remain the same as those discussed in Section 4.21.8.2
13 of the 2013 PEA.

14 **4.24.10 Water Resources**

15 **4.24.10.1 Affected Environment**

16 The affected environment for water resources on Fort Wainwright remains the same as that
17 described in Section 4.21.9.1 of the 2013 PEA. There are no changes to the watershed and
18 surface water, groundwater, water supply, wastewater, and stormwater resources.

19 **4.24.10.2 Environmental Effects**

20 **No Action Alternative**

21 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
22 Alternative due to disturbance and pollution of surface waters and groundwater from continued
23 training activities and exceedance of several secondary drinking water quality standards. Surface
24 water, water supply, and groundwater impacts under the No Action Alternative would remain the
25 same as described in the 2013 PEA.

26 **Alternative 1—Implement Force Reductions**

27 Minor impacts to water resources were anticipated from implementation of force reductions in
28 the 2013 PEA Alternative 1 because of adverse effects on surface waters from ongoing
29 demolition and training activities. Although reduction in maneuver training from force
30 reductions on Fort Wainwright was expected to potentially reduce existing impacts caused by
31 disturbance to surface waters, it would not eliminate the impacts completely. Fort Wainwright
32 was expected to continue to implement pollution and stormwater control plans with associated
33 BMPs. Additionally, it was anticipated that Alternative 1 would reduce wastewater treatment
34 requirements and water demand. Increased force reductions under Alternative 1 of this SPEA
35 would continue to have these same minor impacts to surface waters, water supplies,
36 and wastewater.

1 Adverse water resources impacts could conceivably occur if personnel cuts prevented
2 environmental compliance from being implemented. The Army is committed to ensuring that
3 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
4 end-strength reductions were to be realized at Fort Wainwright, the Army would ensure that
5 adequate staffing remains so that mandated environmental requirements would continue to be
6 met and implemented.

7 **4.24.11 Facilities**

8 **4.24.11.1 Affected Environment**

9 The facilities affected environment of the Fort Wainwright installation remains the same as was
10 discussed in Section 4.21.10.1 of the 2013 PEA.

11 **4.24.11.2 Environmental Effects**

12 **No Action Alternative**

13 Under the No Action Alternative, the 2013 PEA concluded that there would be no impacts to
14 facilities at Fort Wainwright. For the current analysis, Fort Wainwright would continue to use its
15 existing facilities to support its tenants and missions so impacts to facilities would remain the
16 same as described in the 2013 PEA.

17 **Alternative 1—Implement Force Reductions**

18 The analysis of force reductions in the 2013 PEA concluded that minor impacts to facilities
19 would occur on Fort Wainwright. Under Alternative 1, implementation of proposed further force
20 reductions would also have an overall minor, adverse impact to facilities. Minor, adverse impacts
21 would include construction or expansion projects that had been programmed in the future may
22 not occur or could be downscoped; moving occupants of older, underutilized, or excess facilities
23 to newer facilities may require modification of existing facilities; and more buildings within the
24 installation may become vacant or underutilized due to reduced requirements for facilities, which
25 would have a negative impact on overall space utilization. Some beneficial impacts are also
26 expected as a result of force reductions such as reduced demands for utilities and reduced
27 demands for training facilities and support services. Some facilities may be re-designated to
28 support units remaining at Fort Wainwright to provide more space and facilities that are better
29 able to meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing
30 buildings or placing them in caretaker status as a result of the reduction in forces is not
31 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
32 these activities are not analyzed.

1 **4.24.12 Socioeconomics**

2 **4.24.12.1 Affected Environment**

3 Fort Wainwright is located in the Fairbanks, Alaska, Metropolitan Statistical Area. The ROI for
 4 this installation includes only FNSB, which is generally considered the geographic extent to
 5 which the majority of the installation’s Soldiers, Army civilians, and contractor personnel and
 6 their Families reside. It is likely that the economic impacts stated below would be concentrated
 7 in the city of Fairbanks because of size of FNSB (7,400 square miles).

8 **Population and Demographics**

9 Using 2011 as a baseline, Fort Wainwright had a total working population of 9,454 consisting of
 10 active component Soldiers and Army civilians, students and trainees, other military services,
 11 civilians and contractors. Of the total working population, 7,430 were permanent party Soldiers
 12 and Army civilians. The population that lives on Fort Wainwright consists of 3,759 Soldiers and
 13 their 5,706 Family members, for a total resident population of 9,465 (TeVrucht, 2014). The
 14 portion of Soldiers, Army civilians, and their Family members living off the installation is
 15 estimated to be 9,244.

16 In 2012, the population in the ROI was 100,141 and increased by 2.6 percent between 2010 and
 17 2012 (Table 4.24-2). Table 4.24-3 displays racial breakdown of the ROI (U.S. Census
 18 Bureau 2012a).

19 **Table 4.24-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Fairbanks North Star Borough, Alaska	100,141	+2.6

20 **Table 4.24-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Fairbanks North Star Borough, Alaska	77.7	5.3	7.2	2.9	6.4	6.8	72.5

21 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

1 **Employment and Income**

2 Between 2000 and 2012, total employment increased in the state of Alaska and in FNSB (Table
 3 4.24-4). The percentage of the population living below poverty in FNSB is 2 percent lower than
 4 for the state of Alaska. Additionally, the median household income of FNSB is less than 1
 5 percent lower than median household income at the state level. Employment, median home value
 6 and household income, and poverty levels are presented in Table 4.24-4 (U.S. Census
 7 Bureau, 2012b).

8 Information regarding the workforce by industry for each county within the ROI was obtained
 9 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 10 the employed labor force.

11 **Table 4.24-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	\$237,900	\$69,917	10
Fairbanks North Star Borough, Alaska	51,715	+25	\$213,500	\$69,485	8

12 ***Fairbanks North Star Borough, Alaska***

13 Education services and health care and social assistance sectors accounts for the greatest share of
 14 the total workforce in FNSB (22 percent). Retail trade is the second largest employment sector
 15 (11 percent), followed by the Armed Forces (10 percent). Public administration also accounts for
 16 a significant share of the total workforce in the borough (10 percent). The remaining 10 sectors
 17 account for 47 percent of total employment.

18 **Housing**

19 Housing resources at Fort Wainwright were described in the 2013 PEA and include 1,976
 20 permanent military Family units. Fort Wainwright is able to meet approximately 69 percent of its
 21 Family housing requirements on the installation (Larson, 2014). Due to the age of facilities, the
 22 installation has begun to revitalize Family housing to upgrade and/or replace substandard
 23 facilities through the Army Family Housing Privatization program. Housing requirements for
 24 accompanied Soldiers at Fort Wainwright were privatized in January of 2009, and are managed
 25 by the RCI program. An estimated 524 units would be constructed and an estimated 321 units
 26 would be revitalized under the RCI program.

1 **Schools**

2 As described in the 2013 PEA, total enrollment in the FNSB School District for the 2011–2012
3 school years was nearly 14,300 students, approximately one-third of whom were in elementary
4 schools attended by children living on Fort Wainwright. Elementary school students living on
5 Fort Wainwright attend Arctic Light Elementary School located on Fort Wainwright, Ticasuk
6 Brown Elementary School located in North Pole, or Ladd Elementary School located in
7 Fairbanks. Children living on Fort Wainwright attend Tanana Middle School and Lathrop High
8 School, which are predominantly civilian schools. Other FNSB schools located near Fort
9 Wainwright, where military Families living off the installation are most likely to reside, include
10 Denali, Hunter, Joy, Nordale (all elementary schools) and Barnette (kindergarten through
11 grade 8).

12 **Public Health and Safety**

13 ***Police Services***

14 The Fort Wainwright Police Department oversees police operations, patrols, gate security,
15 training, traffic accident, and criminal investigations.

16 ***Fire and Emergency Services***

17 The Fort Wainwright Fire Department responds to emergencies involving structures, facilities,
18 transportation equipment, hazardous materials, and natural and man-made disasters, and directs
19 fire prevention activities; and conducts public education programs. The Fort Wainwright Fire
20 and Emergency Services Division has a mutual aid agreement with FNSB and the cities of
21 Fairbanks and North Pole. City, borough, and state police departments provide law enforcement
22 in the ROI.

23 ***Medical Facilities***

24 Health care services are provided by two hospitals and several clinics, and from Bassett Army
25 Community Hospital on Fort Wainwright.

26 **Family Support Services**

27 The Fort Wainwright ACS, which is a division of the Directorate of FMWR, assists Soldiers and
28 their Families with programs that include Army Emergency Relief, Army Family Action Plan,
29 Army Volunteer Corps, Employment Readiness, Exceptional Family Member, Family
30 Advocacy, Financial Readiness, Information & Referral, and Relocation Readiness. The Fort
31 Wainwright CYSS, also under FMWR, provides recreational and learning programs for children
32 and teens at Fort Wainwright.

1 **Recreation Facilities**

2 Fort Wainwright FMWR provides its military community, Families, and civilians sport and
3 fitness programs, leisure activities (a bowling center, golf course, tennis club, and group hiking
4 trips) and skills development opportunities (including an auto repair center).

5 **4.24.12.2 Environmental Effects**

6 **No Action Alternative**

7 Fort Wainwright's continuing operations represent a beneficial source of regional economic
8 activity. No additional impacts to housing, public and social services, public schools, public
9 safety, or recreational activities are anticipated.

10 **Alternative 1—Implement Force Reductions**

11 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
12 significant impact to socioeconomic resources. The description of impacts to the various
13 components of socioeconomics is presented below.

14 ***Population and Economic Impacts***

15 Alternative 1 would result in the loss of 5,811³⁰ Army positions (5,485 Soldiers and 326 Army
16 civilians), each with an average annual income of \$60,735 and \$62,379, respectively. In addition,
17 this alternative would affect an estimated 3,243 spouses and 5,579 children for a total estimated
18 potential impact to 8,822 Family members. The total population of Army employees and their
19 Family members directly affected under Alternative 1 would be projected to be 14,633.

20 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
21 forecasted economic impact value falls outside the historical positive or negative range. Table
22 4.24-5 shows the deviation from the historical average that would represent a significant change
23 for each parameter. The last row summarizes the deviation from the historical average for the
24 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
25 by the EIFS model. Based on the EIFS analysis, changes in employment and population in the
26 ROI under Alternative 1 fall outside the historical range and are categorized as a significant
27 impact. However, there would not be a significant impact to sales and income because the
28 estimated percentage change is within the historical range of these economic parameters.

³⁰ This number was derived by assuming the loss of one BCT, 60 percent of Fort Wainwright's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,811. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,900.

1 **Table 4.24-5. Economic Impact Forecast System and Rational Threshold Value**
 2 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	50.1	40.1	23.4	6.8
Economic contraction significance value	-32.2	-15.5	-6.6	-1.8
Forecast value	-7.7	-9.8	-15.7	-15.0

3 Table 4.24-6 summarizes the predicted impacts to income, employment, and population of the
 4 reductions against the 2012 demographic and economic data. Whereas the forecast value
 5 provides a percent change from the historical average, the percentages in the following table
 6 show the economic impact as a percent of 2012 demographic and economic data. Although not
 7 in exact agreement with the EIFS forecast values, these figures show the same significance
 8 determinations as the EIFS predictions in the previous table.

9 **Table 4.24-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$ 413,485,400	-6,651 (Direct)	-14,633
		-748 (Induced)	
		-7,399 (Total)	
Total 2012 ROI economic estimates	\$4,555,544,000	51,715	100,141
Percent reduction of 2012 figures	-9.1	-14.3	-14.6

10 Note: Sales estimates are not consistently available from public sources for all counties in the United
 11 States; therefore, the sales data for counties are not presented in this table. The estimated
 12 reduction in total sales from EIFS is described in the paragraphs below.

13 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 14 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 15 cumulative force reductions. With a loss of 5,811 Soldiers and Army civilians under Alternative
 16 1, EIFS estimates an additional 840 direct contract service jobs would also be lost. An additional
 17 748 induced jobs would be lost because of the reduction in demand for goods and services within
 18 the ROI. The total reduction in employment is estimated to be 7,399, a significant 14.3 percent
 19 reduction of the total employed labor force in the ROI of 51,715. Income is estimated to fall by
 20 \$413.5 million, a 9.1 percent decrease in income in 2012.

21 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$339.9 million.
 22 There would also be a loss in sales tax receipts to local and state governments. The average local
 23 sales tax rate for Alaska is 1.7 percent (Tax Foundation, 2014). To estimate sales tax reductions,
 24 information was utilized on the proportion of sales that would be subject to sales tax on average

1 across the country. According to the U.S. Economic Census, an estimated 16 percent sales would
2 be subject to sales tax (U.S. Economic Census, 2012). This percentage and applicable tax rate
3 was applied to the estimated decrease in sales of \$339.9 million resulting in an estimated sales
4 tax receipts decrease of \$925,000 under Alternative 1.

5 Of the approximately 100,141 people (including those residing on Fort Wainwright) who live
6 within the ROI, 5,811 Army employees and their estimated 8,822 Family members are predicted
7 to no longer reside in the area under Alternative 1, resulting in a significant population reduction
8 of 14.6 percent. This number could overstate potential population impacts because some of the
9 people no longer employed by the military could continue to live and work within the ROI,
10 finding employment in other industry sectors. However, because Fort Wainwright is a dominant
11 employer and economic driver of the ROI, many displaced personnel may move out of the area
12 to seek other opportunities elsewhere. There are few employing sectors in the ROI to absorb
13 displaced military employees. A small number of displaced personnel may seek and find work
14 within the ROI; however, others may not be able to find new employment with possible
15 implications for the unemployment rate.

16 **Housing**

17 As stated in the 2013 PEA, a reduction in troop strength would impact the local housing
18 community, installation support services, the barracks program, and associated Army civilian
19 staffing requirements. A troop reduction may also cause a reduction in the rental market
20 available to the RCI program. As a result, the private partner associated with the RCI program
21 could open the installation military housing to the local population. Fort Wainwright is expected
22 to have a housing surplus by 2018 without these force reductions (U.S. Army, 2014). Alternative
23 1 would increase the housing surplus on the installation and in the ROI with further reductions in
24 the demand for housing, potentially impacting home values.

25 **Schools**

26 Reduction of 5,811 Soldiers and Army civilians would result in a reduction of 8,822 Family
27 members, of which 5,579 would be children. It is anticipated that school districts that provide
28 education to Army children would be significantly adversely impacted by this action. Schools on
29 and off the installation are expected to experience a decline in enrollment.

30 The reduction of Soldiers on Fort Wainwright would result in a loss of Federal Impact Aid
31 dollars in the ROI. The amount of Federal Impact Aid a district receives is based on the number
32 of students who are considered “federally connected” and attend district schools. Actual
33 projected dollar amounts cannot be determined at this time due to the variability of appropriated
34 dollars from year to year, and the actual number of affected school-age children for military and
35 civilian Families. School districts in the ROI would likely need fewer teachers and materials as
36 enrollment drops, which would partially offset the reduced Federal Impact Aid.

1 As described in the 2013 PEA, the state of Alaska is allowed to take Federal Impact Aid funding
2 into account when distributing public education foundation dollars, possibly lessening the impact
3 from the reduction in Federal Impact Aid to the FNSB School District. However, as the
4 proportion of Family members that would be removed from the FNSB school system accounts
5 for approximately 40 percent of total enrollment for the 2011-2012 school year, it is anticipated
6 that a significant, adverse impact to schools would occur under Alternative 1.

7 **Public Services**

8 Adverse impacts to public services could conceivably occur if personnel cuts were to
9 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
10 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
11 any drawdown in military or civilian personnel, the Army is committed to meeting health and
12 safety requirements. Minor impacts to public services are expected to occur because the existing
13 service level for the installation and the ROI would still be available.

14 **Family Support Services and Recreation Facilities**

15 Family Support Services and recreation facilities would experience reduced demand and use and
16 subsequently, would require fewer personnel and/or reduced funding; however, the Army is
17 committed to meeting the needs of the remaining population on the installation. As a result, the
18 installation anticipates minor impacts to Family Support Services and recreation facilities under
19 Alternative 1.

20 **Environmental Justice and Protection of Children**

21 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
22 *Low-Income Populations*, states that “each Federal agency shall make achieving environmental
23 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
24 and adverse human health or environmental effects of its programs, policies, and activities on
25 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
26 disproportionate adverse impact to minorities, economically disadvantaged populations or
27 children in the ROI. Job losses would be experienced across all income levels and economic
28 sectors and spread geographically throughout the ROI.

29 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
30 federal agencies are required to identify and assess environmental health and safety risks that
31 may disproportionately affect children and to ensure that the activities they undertake do not
32 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
33 were to be realized, the Army is committed to implementing required environmental compliance
34 and meeting the health and safety needs of the people associated with the installation, including
35 children. Therefore, it is not anticipated under Alternative 1 would result in any environmental
36 health and safety risks to children within the ROI. Additionally, this analysis evaluates the
37 effects associated with workforce reductions only, and any subsequent actions on the installation

1 that may require ground-disturbing activities that have the potential to result in environmental
2 health and safety risks to children, such as demolishing vacant buildings, is beyond the scope of
3 this analysis and would be evaluated in future, site-specific NEPA analyses, as appropriate.

4 **4.24.13 Energy Demand and Generation**

5 **4.24.13.1 Affected Environment**

6 The energy demand and generation affected environment of the Fort Wainwright installation
7 remains the same as was discussed in Section 4.21.12.1 of the 2013 PEA.

8 **4.24.13.2 Environmental Effects**

9 **No Action Alternative**

10 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
11 impacts to energy demand and generation at Fort Wainwright. For the current analysis, Fort
12 Wainwright would continue to draw similar amounts of energy from its utility provider with the
13 same requirements for energy and maintenance of infrastructure so impacts to energy demand
14 and generation would remain the same as described in the 2013 PEA.

15 **Alternative 1—Implement Force Reductions**

16 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
17 demand and generation would occur on Fort Wainwright. Under Alternative 1, minor, beneficial
18 impacts to energy are anticipated due to a further reduction in energy consumption associated
19 with the additional force reductions. The installation would also be better positioned to meet
20 energy and sustainability goals.

21 **4.24.14 Land Use Conflicts and Compatibility**

22 **4.24.14.1 Affected Environment**

23 The land use affected environment of the Fort Wainwright installation remains the same as
24 described in Section 4.21.13.1 of the 2013 PEA.

25 **4.24.14.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative no changes to land use conditions would occur and no impacts
28 are anticipated, as described in the 2013 PEA.

29 **Alternative 1—Implement Force Reductions**

30 The 2013 PEA concluded that the force reductions at Fort Wainwright would result in minor,
31 beneficial impacts to land use because a reduction in training activities would allow more

1 opportunities for other land uses such as ecosystem management or recreational activities. Under
2 Alternative 1, impacts to land use at Fort Wainwright would be similar to those described in the
3 2013 PEA.

4 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
5 land use ordinances and regulations. Even if the full end-strength reductions were to be realized
6 at Fort Wainwright, the Army would ensure that adequate staffing remains so that the installation
7 would comply with all mandatory environmental regulations including land use ordinances
8 and regulations.

9 **4.24.15 Hazardous Materials and Hazardous Waste**

10 **4.24.15.1 Affected Environment**

11 As described in the 2013 PEA, hazardous materials are used on Fort Wainwright. Fort
12 Wainwright is registered with EPA as a Large Quantity Generator of hazardous waste in
13 accordance with RCRA. There is no treatment facility on-site and all hazardous waste generated
14 at the installation is stored and removed from the installation within 90 days. Hazardous waste at
15 Fort Wainwright is primarily generated from vehicle maintenance and facilities operations.
16 Hazardous materials include petroleum-contaminated absorbent pads, batteries, light ballasts,
17 mercury containing bulbs, oils and fuels, compressed gas, LBP, paint thinners, pesticides,
18 solvents and degreasers, and non-recyclable transmission fluid. No substantial changes have
19 occurred to the affected environment since 2013; however an updated management plan has been
20 drafted since the 2013 PEA and is currently being implemented.

21 **4.24.15.2 Environmental Effects**

22 **No Action Alternative**

23 As stated in the 2013 PEA, negligible impacts are anticipated under the No Action Alternative.
24 Use of hazardous materials and generation of hazardous wastes would continue on Fort
25 Wainwright in accordance with all applicable laws, regulations and plans.

26 **Alternative 1—Implement Force Reductions**

27 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts from hazardous
28 materials and hazardous waste would occur on Fort Wainwright. Alternative 1 in this SPEA is
29 not expected to involve major changes to the installation operations or types of activities
30 conducted on Fort Wainwright, therefore impacts would continue to be negligible. Because of
31 the reduced numbers of people, it is likely that the potential for spills would be reduced further
32 during training and maintenance activities. The volume of waste generated and material
33 requiring storage would increase slightly because deactivating units would turn in hazardous
34 material for storage to avoid transportation risks. The Army is committed, however, to ensuring
35 that personnel cuts will not result in non-compliance with regulations governing the handling,

1 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.
2 Even if the full end-strength reductions were to be realized at Fort Wainwright, the Army would
3 ensure that the installation would comply with all mandatory environmental regulations.

4 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
5 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
6 therefore, potential impacts from these activities are not analyzed.

7 **4.24.16 Traffic and Transportation**

8 **4.24.16.1 Affected Environment**

9 The transportation affected environment of the Fort Wainwright ROI remains the same as
10 described in Section 4.21.15.1 of the 2013 PEA with three primary roads that lead onto the
11 installation, three ACPs, and four main roads and numerous secondary roads used for
12 transportation on the installation.

13 **4.24.16.2 Environmental Effects**

14 **No Action Alternative**

15 Under the No Action Alternative, the 2013 PEA anticipated minor, adverse impacts. Surveys and
16 studies determined the existing transportation system is sufficient to support the current traffic
17 load, so minor, adverse impacts would continue to be expected under the No Action Alternative.

18 **Alternative 1—Implement Force Reductions**

19 The 2013 PEA concluded that beneficial impacts are anticipated from the decrease in military
20 and privately-owned vehicles, likely alleviating the traffic flow issues at the Main Gate entrance
21 to the installation. With the implementation of Alternative 1, the Soldier population would
22 decrease and there would be less traffic competing with seasonal (spring and summer) tourist
23 traffic. Impacts to local highways associated with military convoys would also be reduced. The
24 size of this beneficial impact under Alternative 1 would be larger than anticipated at the time of
25 the 2013 PEA.

26 **4.24.17 Cumulative Effects**

27 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
28 realignment at Fort Wainwright consists of FNSB. Section 4.21.16 of the 2013 PEA noted
29 numerous planned or proposed actions within the ROI that reasonably could be initiated within
30 the next 5 years and would have the potential to cumulatively add impacts to Alternative 1. A
31 number of the Army's proposed projects have been previously identified in the installation's
32 Real Property Master Planning Board and are programmed for future execution.

1 **Reasonably Foreseeable Future Projects on Fort Wainwright**

2 No reasonably foreseeable future projects on Fort Wainwright were identified by the installation
3 beyond those noted in the 2013 PEA.

4 **Reasonably Foreseeable Future Projects outside Fort Wainwright**

5 The basing action that would have involved moving one squadron of F-16s from Eielson AFB to
6 Joint Base Elmendorf-Richardson, identified in the 2013 PEA, is no longer a reasonably
7 foreseeable future project and is no longer analyzed as a cumulative action. Additionally, beyond
8 those mentioned in the 2013 PEA, there is a potential for the stationing of F-35 Joint Strike
9 Fighter and accompanying personnel at Eielson AFB, located just outside Fairbanks. It is not
10 known at this time if one or two squadrons would be stationed at Eielson AFB, if the installation
11 were to be selected for the F-35 stationing. An estimate for one squadron of F-35 aircraft (24
12 planes) would add approximately 1,449 military personnel (3,200 total if including dependents).
13 For two squadrons (48 planes), the addition would be approximately 1,959 military (4,300 total
14 including dependents). In addition, there are other projects and actions that affect regional
15 economic conditions and generally include construction and development activities,
16 infrastructure improvements, and business and government projects and activities. Additionally,
17 smaller, less diversified economies will be more vulnerable to force reductions and provide
18 fewer opportunities to displaced Army employees.

19 **No Action Alternative**

20 Cumulative effects as a result of the No Action Alternative are essentially the same as
21 determined in the 2013 PEA, ranging from negligible to minor and adverse, with the exception
22 of cultural resources. Cumulative effects of the No Action Alternative on cultural resources are
23 anticipated to be significant but mitigable. Current socioeconomic conditions would persist
24 within the ROI, and the No Action Alternative would not contribute to any changes.

25 **Alternative 1—Implement Force Reductions**

26 The cumulative effects of Alternative 1 would be essentially the same as was determined in the
27 2013 PEA. Overall, the potential cumulative impacts of Alternative 1 at Fort Wainwright are
28 anticipated to be significant and adverse for socioeconomics and significant but mitigable for
29 cultural resources. Cumulative impacts for the other resources would range from minor and
30 adverse to beneficial.

31 The socioeconomic impact under Alternative 1, as described in Section 4.24.12.2 with the loss of
32 5,811 Soldiers and Army civilians, could lead to significant impacts to the population,
33 employment, and schools in the ROI, notably in the city of Fairbanks. Fort Wainwright has long
34 been a key component of the Fairbank's economy employing several thousand Soldiers and
35 civilian employees within the ROI. The relatively smaller, rural economy of the ROI depends on
36 the installation's employment and economic activity. With fewer opportunities for employment,

1 the ROI would likely not be able absorb many of the displaced forces. In FNSB, the Armed
2 Forces account for 10 percent of the workforce, demonstrating the importance of installation to
3 employment opportunities in the region.

4 Stationing changes would also affect regional economic conditions through the jobs and income
5 they bring (or lose) within the region. Although other services have not finalized their stationing
6 changes, increases in military and civilian personnel at Eielson AFB could be anticipated. It is
7 not known at this time whether one or more squadron of F-35 Joint Strike Fighters would be
8 stationed at Eielson AFB or even whether the installation would be selected for the stationing. If
9 the stationing of F-35 were to occur, an increase in military and civilian personnel would have a
10 cumulative beneficial impact to Fairbank's economy.

11 Other infrastructure improvements and construction and development activity would also benefit
12 the regional economy through additional economic activity, jobs, and income in the ROI. Oil and
13 gas activities would also affect regional economic conditions. However, these potential benefits
14 would not offset the adverse impacts under Alternative 1 and other adverse cumulative actions.
15 Under Alternative 1, the loss of approximately 5,800 Soldiers and Army civilians, in conjunction
16 with other reasonably foreseeable actions, would have significant impacts to population,
17 employment, tax receipts, and schools in the ROI.

1 **4.25 Joint Base Elmendorf-Richardson, Alaska**

2 **4.25.1 Introduction**

3 Joint Base Elmendorf-Richardson was analyzed in the 2013 PEA. Background information on
 4 the installation, including location, tenants, mission, and population is discussed in Section
 5 4.10.1 of the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other
 6 than Army staff at this Air Force managed joint base could be analyzed in separate, future NEPA
 7 analyses, as appropriate, although these reductions would not be related to the Army 2020
 8 reductions analyzed herein.

9 Joint Base Elmendorf-Richardson’s 2011 baseline permanent party population was 6,861. In this
 10 SPEA, Alternative 1 assesses a potential population loss of 5,300, including approximately 5,169
 11 permanent party Soldiers and 164 Army civilians.

12 **4.25.2 Valued Environmental Components**

13 For alternatives the Army is considering as part of its 2020 force structure realignment no
 14 significant, adverse environmental impacts are anticipated for Joint Base Elmendorf-Richardson;
 15 however, significant socioeconomic impacts are anticipated under Alternative 1—Implement
 16 Force Reductions. Table 4.25.2-1 summarizes the anticipated impacts to VECs under
 17 each alternative.

18 **Table 4.25-1. Joint Base Elmendorf-Richardson Valued Environmental Component**
 19 **Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Less than Significant	Beneficial
Airspace	Negligible	Beneficial
Cultural Resources	Significant but Mitigable	Significant, but Mitigable
Noise	Minor	Beneficial
Soils	Less than Significant	Minor
Biological Resources	Significant, but Mitigable	Minor
Wetlands	Less than Significant	Beneficial
Water Resources	Minor	Beneficial
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	Minor	Minor
Hazardous Materials and Hazardous Waste	Less than Significant	Less than Significant
Traffic and Transportation	Less than Significant	Beneficial

1 **4.25.3 Air Quality**

2 **4.25.3.1 Affected Environment**

3 The air quality affected environment of the Joint Base Elmendorf-Richardson ROI remains the
4 same as described in Section 4.10.2.1 of the 2013 PEA. The Joint Base Elmendorf-Richardson
5 area has not been designated as a nonattainment area for any criteria pollutants (EPA, 2013).

6 **4.25.3.2 Environmental Effects**

7 **No Action Alternative**

8 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
9 emissions at current levels, as well as controlled burns for vegetation management, would result
10 in less than significant impacts to air quality. Air quality impacts of the No Action Alternative
11 for this SPEA remain the same as described in the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would
14 result in minor, beneficial impacts to air quality because of reduced operations and maintenance
15 activities and reduced vehicle miles travelled associated with the facility. Impacts to air quality
16 from the further force reductions proposed under Alternative 1 would continue to be beneficial
17 assuming a corresponding decrease in operations and vehicle travel to and from Joint Base
18 Elmendorf-Richardson. The size of this beneficial impact under Alternative 1 would be slightly
19 larger than at the time of the 2013 PEA.

20 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
21 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
22 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

23 The Army is committed to ensuring that personnel cuts will not result in Army non-compliance
24 with air quality regulations. However, management at Joint Base Elmendorf-Richardson is under
25 the authority of the Air Force, so measures to maintain compliance regarding overall air quality
26 regulations would continue to be met by the Air Force.

27 **4.25.4 Airspace**

28 **4.25.4.1 Affected Environment**

29 The airspace affected environment for Joint Base Elmendorf-Richardson remains the same as
30 described in Section 4.10.3.1 of the 2013 PEA; restricted airspace is sufficient to meet the
31 current airspace requirements.

1 **4.25.4.2 Environmental Effects**

2 **No Action Alternative**

3 Impacts to Joint Base Elmendorf-Richardson under the No Action Alternative remain negligible,
4 as described in Section 4.10.3.2 of the 2013 PEA. Joint Base Elmendorf-Richardson would
5 maintain existing airspace operations.

6 **Alternative 1—Implement Force Reductions**

7 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to airspace
8 would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, implementation of
9 proposed further force reductions would increase the beneficial impacts. While there would not
10 be a decreased requirement for airspace, a force reduction would result in slightly lower
11 utilization and requirements for airspace use.

12 **4.25.5 Cultural Resources**

13 **4.25.5.1 Affected Environment**

14 The affected environment for cultural resources at Joint Base Elmendorf-Richardson has not
15 changed since 2013, as described in Section 4.10.4 of the 2013 PEA.

16 **4.25.5.2 Environmental Effects**

17 **No Action Alternative**

18 Section 4.10.4.2 of the 2013 PEA describes the effects of the No Action Alternative at as
19 significant but mitigable. There has not been a change in the affected environment since the
20 publication of the 2013 PEA that would result in a reduction of impacts to cultural resources.
21 Ongoing and new construction and demolition would continue in some areas of the installation.
22 Live-fire and maneuver training would also continue, allowing for the possibility of inadvertent
23 damage to cultural resources. All activities with the potential to affect cultural resources would
24 continue to be monitored and regulated through the use of existing agreements and/or
25 preventative and minimization measures.

26 **Alternative 1—Implement Force Reductions**

27 Alternative 1 would have a significant but mitigable impact on cultural resources as described in
28 Section 4.10.4.2 of the 2013 PEA. Effects under Alternative 1 would be similar to those under
29 the No Action Alternative—the reduction of forces at Joint Base Elmendorf-Richardson would
30 not result in a change in the existing conditions. Therefore, if current operations are having a
31 significant but mitigable impact on cultural resources, the potential reduction in forces proposed
32 under Alternative 1 would not alter those impacts. Additionally, the Army is committed to
33 ensuring that personnel cuts will not result in Army non-compliance with cultural
34 resources regulations.

1 This alternative could result in some beneficial effects as a decrease in training activities could
2 reduce the potential for inadvertent disturbance of archaeological resources. Additionally, with
3 fewer people to support, there may be a reduction in the number of undertakings with the
4 potential to affect cultural resources.

5 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
6 caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of
7 the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities
8 are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or
9 demolish structures as a result of Army force reductions, potential impacts could be analyzed in
10 separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base
11 Elmendorf-Richardson to avoid, minimize, and/or mitigate these effects.

12 **4.25.6 Noise**

13 **4.25.6.1 Affected Environment**

14 The noise affected environment of Joint Base Elmendorf-Richardson remains the same as
15 described in Section 4.10.5.1 of the 2013 PEA. Primary sources of noise at Joint Base
16 Elmendorf-Richardson include traffic, live fire from small and large caliber weapons, and
17 demolition exercises.

18 **4.25.6.2 Environmental Effects**

19 **No Action Alternative**

20 Under the No Action Alternative, minor impacts from noise are anticipated, which would
21 represent no change to current frequencies or intensities of noise generating activities, as
22 described in the 2013 PEA.

23 **Alternative 1—Implement Force Reductions**

24 The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would
25 result in beneficial noise impacts because there would be a reduction in the frequency of noise
26 generating events. The beneficial impacts under Alternative 1 would be similar to those
27 described in the 2013 PEA.

28 The Army is committed to ensuring that personnel cuts will not result in Army non-compliance
29 with noise ordinances and regulations. However, management at Joint Base Elmendorf-
30 Richardson is under the authority of the Air Force; therefore, health and safety requirements,
31 including noise compliance, would continue to be met by the Air Force.

1 **4.25.7 Soils**

2 **4.25.7.1 Affected Environment**

3 The soils affected environment on the installation remains the same as was discussed in Section
4 4.10.6.1 of the 2013 PEA.

5 **4.25.7.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative in the 2013 PEA, less than significant impacts to soils were
8 anticipated from continuing training, to include impacts to soils from removal of or damage to
9 vegetation, digging activities, ground disturbance from vehicles, and ammunition or explosives
10 used in training events. Impacts under the No Action Alternative on Joint Base Elmendorf-
11 Richardson remain the same as those discussed in Section 4.10.6.2 of the 2013 PEA.

12 **Alternative 1—Implement Force Reductions**

13 Under Alternative 1 of the 2013 PEA, minor, adverse impacts to soils were anticipated as a result
14 of less use of weapons ranges and maneuvering ranges. Further forces reductions (Alternative 1
15 of this SPEA) would result in less erosion, soil compaction, and loss of vegetation.

16 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
17 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
18 potential impacts from these activities on soils are not analyzed. The Army is committed to
19 ensuring that personnel cuts will not result in Army non-compliance with regulations affecting
20 soils. However, environmental compliance at Joint Base Elmendorf-Richardson is under the
21 authority of the Air Force, so measures to maintain compliance regarding soils management
22 would continue to be met by the Air Force. Impacts under Alternative 1 at Joint Base Elmendorf-
23 Richardson would be beneficial and remain the same as those discussed in Section 4.10.6.2 of
24 the 2013 PEA.

25 **4.25.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered**
26 **Species)**

27 **4.25.8.1 Affected Environment**

28 As described in Section 4.10.7.1 of the 2013 PEA, the affected environment on Joint Base
29 Elmendorf-Richardson provides habitat for various species of birds, mammals, and fish. Three
30 federally listed threatened and endangered species are known exist on Joint Base Elmendorf-
31 Richardson along with two ESA candidate species and four species of marine mammals which
32 are federally protected under the Marine Mammal Protection Act. No changes have occurred to
33 the affected environment since 2013.

1 **4.25.8.2 Environmental Effects**

2 **No Action Alternative**

3 The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action
4 Alternative would result in significant but mitigable impacts to biological resources due to
5 ongoing training and maintenance activities on Joint Base Elmendorf-Richardson. Under the No
6 Action Alternative, adverse impacts to biological resources would persist at their current rate.
7 Biological resources on Joint Base Elmendorf-Richardson would continue to be managed in
8 accordance with the current installation INRMP (Joint Base Elmendorf-Richardson, 2011).

9 **Alternative 1—Implement Force Reductions**

10 The analysis of Alternative 1 in the 2013 PEA concluded that minor impacts to biological
11 resources would occur on Joint Base Elmendorf-Richardson because that Alternative 1 does not
12 involve major changes to the installation operations or types of activities conducted on Joint
13 Base Elmendorf-Richardson, only a decrease in the frequency of training and/or maintenance
14 activities. The Army anticipates that further proposed reduction in forces (Alternative 1 of this
15 SPEA) would not change this finding. However, further reduction in personnel is likely to
16 partially relieve current pressures on biological resources due to a reduction in scheduling
17 conflicts which would increase the ease of conducting biological resource monitoring and
18 proactive conservation activities. The Army is committed to ensuring that personnel cuts will not
19 result in Army non-compliance with natural resources regulations. However, environmental
20 compliance at Joint Base Elmendorf-Richardson is under the authority of the Air Force, so
21 measures to maintain compliance regarding natural resource management would continue to be
22 met by the Air Force.

23 **4.25.9 Wetlands**

24 **4.25.9.1 Affected Environment**

25 The wetlands affected environment on the installation remains the same as was discussed in
26 Section 4.10.8.1 of the 2013 PEA.

27 **4.25.9.2 Environmental Effects**

28 **No Action Alternative**

29 Under the No Action Alternative in the 2013 PEA, less than significant impacts to wetlands were
30 anticipated from continued training schedules. Potential wetland impacts would be reviewed and
31 managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action
32 Alternative on Joint Base Elmendorf-Richardson remain the same as those discussed in Section
33 4.10.8.2 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result
3 of decreased maneuvers and training. Less sedimentation and vegetation loss were anticipated,
4 and degraded wetlands were expected to restore towards their reference functions and values.
5 Impacts to wetlands could conceivably occur if the further force reductions decreased
6 environmental staffing levels to a point where environmental compliance could not be properly
7 implemented. However, environmental compliance at Joint Base Elmendorf-Richardson is under
8 the authority of the Air Force, so measures to maintain compliance regarding wetland regulations
9 would continue to be met by the Air Force. The Army is committed, however, to ensuring that
10 personnel cuts will not result in Army non-compliance with wetland regulations. Therefore,
11 impacts under Alternative 1 of this SPEA at Joint Base Elmendorf-Richardson would be
12 beneficial and remain the same as those discussed in Section 4.3.7.2 of the 2013 PEA.

13 **4.25.10 Water Resources**

14 **4.25.10.1 Affected Environment**

15 The affected environment for water resources on Joint Base Elmendorf-Richardson remains the
16 same as that described in Section 4.10.9.1 of the 2013 PEA. There are no changes to surface
17 water, groundwater, water quality, drinking water supply, wastewater, and stormwater resources.

18 **4.25.10.2 Environmental Effects**

19 **No Action Alternative**

20 In the 2013 PEA, minor, adverse impacts to water resources were anticipated from the No Action
21 Alternative due to the disturbance and pollution of surface waters from ongoing construction,
22 maintenance activities, and erosion. Surface water impacts to water resources under the No
23 Action Alternative would remain the same as described in the 2013 PEA.

24 **Alternative 1—Implement Force Reductions**

25 Beneficial impacts to water resources were anticipated from implementation of force reductions
26 in the 2013 PEA Alternative 1 because of an overall reduction in the potential to affect water
27 resources. Specifically, force reductions were anticipated to result in a reduction in the demand
28 on the water supply and a decrease in indirect construction related impacts to multiple water
29 resources. Reduction in maneuver training from force reductions on Joint Base Elmendorf-
30 Richardson was also anticipated to potentially reduce impacts to surface waters due to
31 disturbance and spills. Increased force reductions under Alternative 1 of this SPEA would
32 continue to have the same beneficial impacts to surface water quality and water usage
33 and supply.

34 Adverse water resources impacts could conceivably occur if personnel cuts prevented
35 environmental compliance from being implemented. However, environmental compliance at

1 Joint Base Elmendorf-Richardson is under the authority of the Air Force, so measures to
2 maintain compliance regarding water resource regulations would continue to be met by the Air
3 Force. The Army is committed, however, to ensuring that personnel cuts will not result in Army
4 non-compliance with water quality regulations.

5 **4.25.11 Facilities**

6 **4.25.11.1 Affected Environment**

7 The facilities affected environment of the Joint Base Elmendorf-Richardson installation remains
8 the same as was discussed in Section 4.10.10.1 of the 2013 PEA.

9 **4.25.11.2 Environmental Effects**

10 **No Action Alternative**

11 Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to
12 facilities at Joint Base Elmendorf-Richardson. For the current analysis, Joint Base Elmendorf-
13 Richardson would continue to pursue funding to consolidate existing facilities and already
14 programmed construction projects to replace non-standard and aging facilities. As noted in the
15 2013 PEA, the installation has an adequate quantity of facilities to support the existing units'
16 requirements for living, operations, and maintenance. Impacts to facilities would remain the
17 same as described in the 2013 PEA.

18 **Alternative 1—Implement Force Reductions**

19 The analysis of force reductions in the 2013 PEA concluded that minor, adverse impacts to
20 facilities would occur on Joint Base Elmendorf-Richardson. Under Alternative 1, implementation
21 of proposed further force reductions would also continue to have overall minor, adverse impacts.
22 Impacts would occur from the fact that future, programmed construction or expansion projects
23 may not occur or could be downscoped; moving occupants of older, underutilized, or excess
24 facilities into newer facilities may require modifications to existing facilities; and a greater
25 number of buildings on the installation may become vacant or underutilized due to reduced
26 requirements for facilities, which would have a negative impact on overall space utilization.
27 Some beneficial impacts are also expected as a result of force reductions such as reduced
28 demands for utilities and reduced demands for training facilities and support services. The force
29 reductions would also provide the installation the opportunity to reduce reliance on aging
30 facilities that are not up to current standards. Some facilities could be re-purposed to support
31 tenant unit requirements. As discussed in Chapter 1, the demolition of existing buildings or
32 placing them in caretaker status as a result of the reduction in forces is not reasonably
33 foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these
34 activities are not analyzed.

1 If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air
 2 Force-managed joint base, the Air Force could conduct any required site-specific NEPA
 3 analyses, as appropriate, and make the final determinations regarding disposition of these
 4 affected facilities and/or training areas.

5 **4.25.12 Socioeconomics**

6 **4.25.12.1 Affected Environment**

7 Joint Base Elmendorf-Richardson is located to the east of the city of Anchorage in south-central
 8 Alaska. The ROI for Joint Base Elmendorf-Richardson in this analysis includes those areas that
 9 are generally considered the geographic extent to which the majority of the installation’s
 10 Soldiers, Army civilians, contractor personnel, and their Families reside, which includes the
 11 Municipality of Anchorage, a consolidated city-borough.

12 **Population and Demographics**

13 Using 2011 as a baseline, Joint Base Elmendorf-Richardson has a total working population of
 14 8,924 consisting of active component Soldiers and Army civilians, students and trainees, other
 15 military services, civilians and contractors. Of the total working population, 6,861 were
 16 permanent party Soldiers and Army civilians. The population that lives on Joint Base Elmendorf-
 17 Richardson consists of 1,729 Soldiers and their estimated 2,625 Family members, for a total on-
 18 installation resident population of 4,354 (TeVrucht, 2014). The portion of Soldiers and Army
 19 civilians living off the installation is 12,922 and consists of Soldiers, Army civilians, and their
 20 Families. Additionally, there are 62 students and trainees associated with the installation.

21 In 2012, the population of the ROI was 298,294 and increased by 2.2 percent between 2010 and
 22 2012 (Table 4.25-2) (U.S. Census Bureau 2012a). The racial and ethnic composition of the ROI
 23 is presented in Table 4.25-3.

24 **Table 4.25-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Consolidated borough and city of Anchorage, Alaska	298,294	+2.2

1 **Table 4.25-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, Not Hispanic or Latino (percent)
State of Alaska	67.5	3.7	14.8	5.7	7.1	6.1	63.1
Consolidated borough and city of Anchorage, Alaska	67.0	6.2	8.1	8.7	7.8	8.2	61.2

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Total employment increased by 16 percent in Anchorage between 2000 and 2012 (Table 4.25-4).
 5 Median household income is 8 percent higher in Anchorage than median household income in
 6 the state of Alaska as a whole. Employment, median home value, median household income, and
 7 poverty levels are summarized in Table 4.25-4 below (U.S. Census Bureau, 2012b).

8 **Table 4.25-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Population Below Poverty Level (percent)
State of Alaska	358,521	+20	\$237,900	\$69,917	10
Consolidated borough and city of Anchorage, Alaska	156,248	+16	\$277,100	\$76,495	8

9 Information regarding the workforce by industry for each county within the ROI was obtained
 10 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 11 the employed labor force.

12 ***Consolidated Borough and City of Anchorage, Alaska***

13 The primary source of employment in Anchorage County is the educational services, and health
 14 care and social assistance sector (20 percent). Retail trade; public administration; and the
 15 professional, scientific, and management, and administrative and waste management services
 16 sectors each account for 10 percent of the total workforce. The arts, entertainment, and
 17 recreation, and accommodation and food services sector accounts for 8 percent of the total

1 workforce while the Armed Forces account for 5 percent of the total workforce. The remainder
2 of the sectors account for 37 percent of the total workforce in Anchorage.

3 **Housing**

4 Housing resources at Joint Base Elmendorf-Richardson were described in the 2013 PEA and
5 include 3,262 permanent military Family units (TeVrucht, 2014).

6 **Schools**

7 As described in the 2013 PEA, Joint Base Elmendorf-Richardson children attend Ursa Major
8 Elementary School, Ursa Minor Elementary School, Gruening Middle School, and Eagle River
9 High School, which are part of the Anchorage School District. Elementary, middle, high, and
10 charter schools are located close to the installation, within 1 mile of the Joint Base Elmendorf-
11 Richardson border. Generally, elementary schools, middle schools, and charter schools are
12 experiencing under-enrollment. Between fall 2010 and fall 2011, there was a decrease in total
13 enrollment by 0.54 percent, or 263 students. Only one of the schools is operating at over the
14 school's capacity.

15 **Public Health and Safety**

16 ***Police Services***

17 Police services include two state trooper posts, a Federal Bureau of Investigation center, a district
18 office for the U.S. Marshal Service, and Ted Stevens Anchorage International Airport Police and
19 Fire Department. One military police station is located within the main cantonment, north of the
20 Fireweed neighborhood.

21 ***Fire and Emergency Services***

22 Fire services include Joint Base Elmendorf-Richardson Fire Department, Anchorage Fire
23 Department, and Ted Stevens Anchorage International Airport Police and Fire Department. The
24 Anchorage Fire Department operates out of 13 fire stations.

25 ***Medical Facilities***

26 There are several health care options in Anchorage, including Alaska Regional Hospital and
27 Providence Alaska Medical Center, both with emergency room capabilities. Many other
28 healthcare clinics and private practice offices are located within the city of Anchorage, and a
29 Department of Veterans Affairs Hospital is located near the Muldoon entrance of Joint Base
30 Elmendorf-Richardson and an Anchorage Veterans Center is located in the community of Tudor,
31 south of Joint Base Elmendorf-Richardson. Military healthcare facilities include the U.S. Army
32 medical clinic at Joint Base Elmendorf-Richardson, the Air National Guard Medical Squadron,
33 and the 673rd Medical Group.

1 **Family Support Services**

2 As described in the 2013 PEA, child development centers, childcare centers, schools, and
3 playgrounds are generally located within close proximity to the residential areas. Children and
4 youth programs are offered within the cantonment area at Joint Base Elmendorf-Richardson as
5 part of FMWR. Joint Base Elmendorf-Richardson also has a theater and running trails for use.

6 **Recreation Facilities**

7 As described in the 2013 PEA, recreation facilities are primarily located within the cantonment
8 area, including a large physical fitness center, a theater, golf course, cross country skiing and
9 running trails, and a small ski hill.

10 **4.25.12.2 Environmental Effects**

11 **No Action Alternative**

12 Joint Base Elmendorf-Richardson's continuing operations represent a beneficial source of
13 regional economic activity and any increase from Soldier relocations would beneficially affect
14 socioeconomics in the region. No additional impacts to housing, public and social services,
15 public schools, public safety, or recreational activities are anticipated.

16 **Alternative 1—Implement Force Reductions**

17 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
18 significant impact to socioeconomic resources. The description of impacts to the various
19 components of socioeconomics is presented below.

20 ***Population and Economic Impacts***

21 Alternative 1 would result in the loss of 5,333³¹ military positions (5,169 Soldiers and 164 Army
22 civilians), each with an average annual income of \$53,989 and \$62,379, respectively. In addition,
23 Alternative 1 would affect an estimated 2,976 spouses and 5,120 dependent children for a total
24 estimated potential impact to 8,096 Family members. The total population of Army employees
25 and their Family members directly affected under Alternative 1 would be projected to be 13,428.

26 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
27 forecasted economic impact value falls outside the historical positive or negative range. Table
28 4.25-5 shows the deviation from the historical average that would represent a significant change
29 for each parameter. The last row summarizes the deviation from the historical average for the

³¹ This number was derived by assuming the loss of one BCT, 60 percent of Joint Base Elmendorf-Richardson's non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 5,333. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 4,300.

1 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 2 by the EIFS model. Based on the EIFS analysis, changes in employment and population in the
 3 ROI under Alternative 1 fall outside the historical range and are categorized as a significant
 4 impact. However, there would not be a significant impact to sales or income because the
 5 estimated percentage change is within the historical ranges for these economic parameters.

6 **Table 4.25-5. Economic Impact Forecast System and Rational Threshold Value**
 7 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	25.4	17.0	10.3	5.6
Economic contraction significance value	-12.4	-7.7	-3.5	-2.0
Forecast value	-1.8	-2.4	-4.5	-4.7

8 Table 4.25-6 summarizes the predicted impacts to income, employment, and population of the
 9 reductions against the 2012 demographic and economic data. Whereas the forecast value
 10 provides a percent change from the historical average, the percentages in the following table
 11 show the economic impact as a percent of 2012 demographic and economic data. Although not
 12 in exact agreement with the EIFS forecast values, these figures show the same significance
 13 determinations as the EIFS predictions in the previous table.

14 **Table 4.25-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$355,047,800	-5,968 (Direct)	-13,428
		-968 (Induced)	
		-6,936 (Total)	
Total 2012 ROI economic estimates	\$16,295,189,000	156,248	298,294
Percent reduction of 2012 figures	-2.2	-4.4	-4.5

15 Note: Sales estimates are not consistently available from public sources for all counties in the United
 16 States; therefore, the sales data for counties are not presented in this table. The estimated
 17 reduction in total sales from EIFS is described in the paragraphs below.

18 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 19 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 20 cumulative force reductions. Due to the loss of 5,333 Soldiers and Army civilians under
 21 Alternative 1, EIFS estimates an additional 635 direct contract service jobs would be also lost.
 22 An additional 968 induced jobs would be lost because of the reduction in demand for goods and
 23 services within the ROI. Total reduction in employment is estimated to be 6,936, a significant

1 4.4 percent reduction of the total employed labor force in the ROI of 156,248. Income is
2 estimated to reduce by \$355.1 million, a 2.2 percent decrease in income from 2012.

3 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$366.1 million.
4 There would also be a loss in sales tax receipts to local and state governments. The average local
5 sales tax rate for Alaska is 1.69 percent (Tax Foundation, 2014). To estimate sales tax
6 reductions, information on the proportion of sales that would be subject to sales tax on average
7 across the country was utilized. According to the U.S. Economic Census, an estimated 16 percent
8 of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and
9 applicable tax rate was applied to the estimated decrease in sales of \$366.1 million resulting in
10 an estimated sales tax receipts decrease of \$989,900 under Alternative 1.

11 Of the 298,294 people (including those residing on Joint Base Elmendorf-Richardson) who live
12 within the ROI, 5,333 Army employees and their 8,095 Family members are predicted to no
13 longer reside in the area under Alternative 1, resulting in a significant population reduction of 4.5
14 percent. This number likely overstates potential population impacts, as some of the people would
15 no longer employed by the military would continue to live and work within the ROI, finding
16 employment in other industry sectors.

17 **Housing**

18 The population reduction would lead to a decrease in demand for housing and could lead to an
19 increase in housing availability on the installation and in the region, potentially leading to a
20 slight reduction in median home values. As stated in the 2013 PEA, this reduction would also
21 have a beneficial impact to housing availability because it would likely resolve concerns of
22 housing shortages both on and off the installation. However, minor, adverse impacts to housing
23 in the Anchorage area could occur as a result of the potential decline in home values; however,
24 there are many other factors that affect housing prices in Anchorage as well.

25 **Schools**

26 Reduction of 5,333 Soldiers and Army civilians would result in a reduction of 8,095 Family
27 members, of which 5,120 would be children. It is anticipated that school districts that provide
28 education on the installation to Army children would be impacted under Alternative 1. Schools
29 with larger portions of military children in proximity to Joint Base Elmendorf-Richardson,
30 including Ursa Major and Ursa Minor Elementary Schools, would be affected by these
31 enrollment reductions, which would adversely contribute to recent trends in decreasing
32 enrollment. As stated in the 2013 PEA, it is likely that these schools have a large population of
33 military children, but specific numbers of military-connected students are not readily available.

34 The reduction of Soldiers on Joint Base Elmendorf-Richardson would result in a loss of Federal
35 Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is based on
36 the number of students who are considered “federally connected” and attend district

1 schools. Actual projected dollar amounts cannot be determined at this time due to the variability
2 of appropriated dollars from year to year, and the uncertainty of the actual number of affected
3 school-age children. School districts in the ROI would likely need fewer teachers and materials
4 as enrollment drops, which would partially offset the reduced Federal Impact Aid. Overall,
5 adverse impacts to schools associated with Alternative 1 would be minor to significant
6 depending on the number of military-connected students attending specific schools.

7 **Public Services**

8 A reduction in personnel would have minor impacts to emergency services, fire, police, and
9 medical services because the reduction is anticipated to decrease the need for these services.
10 Adverse impacts to public services could conceivably occur if personnel cuts were to
11 substantially affect hospitals, military police, and fire and rescue crews on the installation. These
12 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
13 any drawdown in military or civilian personnel, the Army is committed to meeting health and
14 safety requirements. Many of the public services provided on Joint Base Elmendorf-Richardson
15 are under the authority of the Air Force; these health and safety requirements would continue to
16 be met by the Air Force. The impacts to public services are not expected to be significant
17 because the existing service level for the installation and the ROI would still be available.

18 **Family Support Services and Recreation Facilities**

19 Family Support Services and recreation facilities would experience reduced demand and use and
20 subsequently, would require fewer personnel and/or reduced funding. Many of the Family
21 Support Services and all of the recreational facilities provided on Joint Base Elmendorf-
22 Richardson are under the authority of the Air Force, so measures for meeting those needs would
23 be met at the discretion of the Air Force. As a result, minor impacts to Family Support Services
24 and recreational facilities would occur under Alternative 1. As described in the 2013 PEA, less
25 than significant impacts are anticipated to Family Support Services and recreation facilities under
26 this alternative.

27 **Environmental Justice and Protection of Children**

28 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
29 *Low-Income Populations*, provides: “each Federal agency shall make achieving environmental
30 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
31 and adverse human health or environmental effects of its programs, policies, and activities on
32 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
33 disproportionate adverse impact to minorities, economically disadvantaged populations or
34 children in the ROI. Job losses would be experienced across all income levels and economic
35 sectors and spread geographically throughout the ROI. Minority populations and the percentage
36 of the total population living below poverty in the ROI are proportionally smaller than in the

1 state as a whole, so there would be no disproportionate effect to environmental
2 justice populations.

3 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
4 federal agencies are required to identify and assess environmental health and safety risks that
5 may disproportionately affect children and to ensure that the activities they undertake do not
6 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
7 were to be realized, the Army is committed to implementing required environmental compliance
8 and meeting the health and safety needs of the people associated with the installation, including
9 children, where it is appropriate for them to do so on this Air Force managed joint base.
10 Therefore, it is not anticipated that implementing Alternative 1 would result in any
11 environmental health and safety risks to children within the ROI. Additionally, this analysis
12 evaluates the effects associated with workforce reductions only, and any subsequent actions on
13 the installation that may require ground-disturbing activities that have the potential to result in
14 environmental health and safety risks to children, such as demolishing vacant buildings, is
15 beyond the scope of this analysis and could be evaluated in future, separate, site-specific NEPA
16 analysis by Joint Base Elmendorf-Richardson as appropriate.

17 **4.25.13 Energy Demand and Generation**

18 **4.25.13.1 Affected Environment**

19 The energy demand and generation affected environment of the Joint Base Elmendorf-
20 Richardson installation remains the same as was discussed in Section 4.10.12.1 of the 2013 PEA.

21 **4.25.13.2 Environmental Effects**

22 **No Action Alternative**

23 Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to
24 energy demand and generation at Joint Base Elmendorf-Richardson. For the current analysis,
25 Joint Base Elmendorf-Richardson would continue to consume similar types and amounts of
26 energy so impacts to energy demand and generation would remain the same as for the 2013 PEA.

27 **Alternative 1—Implement Force Reductions**

28 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
29 demand and generation would occur on Joint Base Elmendorf-Richardson. Under Alternative 1,
30 minor, beneficial impacts to energy are anticipated due to a further reduction in energy
31 consumption associated with the additional force reductions. The installation would also be
32 better positioned to meet energy and sustainability goals.

1 **4.25.14 Land Use Conflicts and Compatibility**

2 **4.25.14.1 Affected Environment**

3 The land use affected environment of Joint Base Elmendorf-Richardson remains the same as
4 described in Section 4.10.13.1 of the 2013 PEA.

5 **4.25.14.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative, no changes to land use conditions would occur and therefore
8 continuing minor impacts to land use are anticipated, as described in the 2013 PEA.

9 **Alternative 1—Implement Force Reductions**

10 The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would
11 result in minor impacts to land use, since a reduction in training activities would occur. Under
12 Alternative 1, impacts would be similar to those described under the 2013 PEA.

13 The Army is committed to ensuring that personnel cuts will not result in Army non-compliance
14 with land use ordinances and regulations. Installation management at Joint Base Elmendorf-
15 Richardson is under the authority of the Air Force, so measures to maintain compliance
16 regarding land use ordinances and regulations would continue to be met by the Air Force.

17 **4.25.15 Hazardous Materials and Hazardous Waste**

18 **4.25.15.1 Affected Environment**

19 As described in the 2013 PEA, hazardous materials are used on Joint Base Elmendorf-
20 Richardson. Joint Base Elmendorf-Richardson is registered with EPA as a Large Quantity
21 Generator of hazardous waste in accordance with RCRA. Hazardous materials and wastes
22 include ammunition, UXO, petroleum products, LBP, asbestos-containing materials, PCBs,
23 pesticides, radon, and contamination found at IRP sites. The Joint Base Elmendorf-Richardson
24 Environmental Management Plan governs the use, generation, accumulation, storage, transport,
25 and disposal of hazardous wastes and hazardous materials on the installation. No substantial
26 changes have occurred to the affected environment since 2013.

27 **4.25.15.2 Environmental Effects**

28 **No Action Alternative**

29 As stated in the 2013 PEA, less than significant impacts are anticipated under the No Action
30 Alternative. Use of hazardous materials and generation of hazardous wastes would continue on
31 Joint Base Elmendorf-Richardson in accordance with all applicable laws, regulations and plans.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from
3 hazardous materials and hazardous waste would occur on Joint Base Elmendorf-Richardson.
4 Alternative 1 in this SPEA is not expected to involve major changes to the installation operations
5 or types of activities conducted on the installation. Because of the reduced numbers of people, it
6 is likely that the potential for spills would be reduced further during training and maintenance
7 activities. The volume of waste generated and material requiring storage would increase slightly
8 because deactivating units would turn in hazardous material for storage to avoid transportation
9 risks. Under Alternative 1 in this SPEA, Joint Base Elmendorf-Richardson would continue to
10 implement its hazardous waste management in accordance with its HWMP and applicable
11 regulations and therefore impacts would be less than significant.

12 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
13 environmental compliance from being implemented. However, installation management at Joint
14 Base Elmendorf-Richardson is under the authority of the Air Force, so measures to maintain
15 compliance regarding hazardous waste management would continue to be met by the Air Force.
16 The Army is committed, however, to ensuring that personnel cuts will not result in Army non-
17 compliance with regulations governing the handling, management, disposal, and clean up, as
18 appropriate, of hazardous materials and hazardous waste.

19 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
20 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
21 therefore, potential impacts from these activities are not analyzed.

22 **4.25.16 Traffic and Transportation**

23 **4.25.16.1 Affected Environment**

24 The transportation affected environment of the Joint Base Elmendorf-Richardson ROI remains
25 the same as described in Section 4.10.15.1 of the 2013 PEA. As noted in the 2013 PEA, the
26 installation periodically experiences traffic flow issues at the main gate due to the morning and
27 especially evening commute. Congestion during peak hours was also noted at the Glenn
28 Highway and D Street Interchange. In addition to the main gate, the intersection of Vandenberg
29 Avenue and the Richardson Highway and Davis Avenue experience traffic congestion.

30 **4.25.16.2 Environmental Effects**

31 **No Action Alternative**

32 Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse
33 impacts. While the existing transportation system is sufficient to support the current traffic load,
34 traffic and congestion within and at major traffic control points leading into and away from the

1 installation, in particular the main gate, would persist at current levels. Thus, there would
2 continue to be adverse impacts, but they would be less than significant.

3 **Alternative 1—Implement Force Reductions**

4 The 2013 PEA concluded that the force reductions at Joint Base Elmendorf-Richardson would
5 result in beneficial impacts to traffic and transportation systems, due to the decrease in military
6 fleet vehicles and private vehicles. The 2013 PEA noted that with force reductions the Soldier
7 and Army civilian population would decrease and reduce the competition with seasonal traffic
8 conditions associated with tourism. Impacts to local highways associated with military convoys
9 would also be considerably reduced. These beneficial impacts would also occur under
10 Alternative 1, but with the proposed increase in force reductions the size of the beneficial impact
11 under Alternative 1 would be larger than anticipated at the time of the 2013 PEA.

12 **4.25.17 Cumulative Effects**

13 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
14 realignment at Joint Base Elmendorf-Richardson encompasses the Municipality of Anchorage
15 (consolidated city-borough) in the state of Alaska. Section 4.10.16 of the 2013 PEA noted
16 numerous planned or proposed actions within the ROI that reasonably could be initiated within
17 the next 5 years and would have the potential to cumulatively add impacts to Alternative 1.

18 **Reasonably Foreseeable Future Projects on Joint Base Elmendorf-Richardson**

19 No additional actions have been identified by the installation beyond those noted in the
20 cumulative effects analysis of the 2013 PEA.

21 **Reasonably Foreseeable Future Projects outside Joint Base Elmendorf- 22 Richardson**

23 The Army is not aware of any reasonably foreseeable future projects outside Joint Base
24 Elmendorf-Richardson which would be appropriate for inclusion in the cumulative impacts
25 analysis. However, there are other projects and actions that affect regional economic conditions
26 and generally include construction and development activities, infrastructure improvements, and
27 business and government projects and activities. Additionally, larger economies with more job
28 opportunities could absorb some of the displaced Army workforce, lessening adverse effects of
29 force reductions.

30 **No Action Alternative**

31 The cumulative effects of the No Action Alternative would be the same as determined in the
32 2013 PEA. Current socioeconomic conditions would persist within the ROI, and the No Action
33 Alternative would not contribute to any changes.

1 **Alternative 1—Implement Force Reductions**

2 Cumulative impacts from the proposed implementation of Alternative 1 would be essentially the
3 same as determined in the 2013 PEA. Cumulative impacts from the proposed implementation of
4 Alternative 1 would be beneficial, negligible, or minor in most cases with the exception of
5 socioeconomics, which are anticipated to be significant.

6 The socioeconomic impact under Alternative 1, as described in Section 4.25.12.2 with a loss of
7 5,333 Soldiers and Army civilians, could lead to significant impacts to the population,
8 employment, and schools. Joint Base Elmendorf-Richardson is an important part of the economy
9 in the Anchorage metropolitan area with total employment on the installation of almost 7,000. In
10 the Municipality of Anchorage, the Armed Forces account for 5 percent of the workforce. The
11 Municipality of Anchorage could likely absorb some of the displaced workers, depending on the
12 economy and labor market in the region. The oil and gas industry plays an important role in the
13 economy of Anchorage, and its fluctuations (e.g., activities driven by oil and gas prices among
14 other factors) can considerably affect regional economic conditions in the area. If the majority of
15 the displaced forces are not absorbed into the local labor force, there would be additional adverse
16 impacts to the ROI.

17 Stationing changes would also affect regional economic conditions through the jobs and income
18 they bring (or lose) within the region. The Army force reductions would be compounded by any
19 losses or reductions in service members by the U.S. Air Force, Coast Guard, Navy or Marine
20 Corps within the ROI. Future cuts in federal spending in Alaska may also cause adverse
21 economic impacts within the ROI.

22 Other infrastructure improvements and construction and development activity would benefit the
23 regional economy through additional economic activity, jobs, and income in the ROI; however,
24 these benefits would not offset the adverse impacts under Alternative 1 and other adverse
25 cumulative actions. Under Alternative 1, the loss of approximately 5,300 Soldiers and Army
26 civilians, in conjunction with other reasonably foreseeable actions, would have significant
27 impacts to population, employment, tax receipts, and schools in the ROI.

1 **4.26 Joint Base Langley-Eustis, Virginia**

2 **4.26.1 Introduction**

3 Joint Base Langley-Eustis was analyzed in the 2013 PEA. Background information on the
 4 installation, including location, tenants, mission, and population is discussed in Section 4.11.1 of
 5 the 2013 PEA. Potential impacts resulting from any reductions in staffing levels other than Army
 6 staff at this Air Force managed joint base could be analyzed in separate, future NEPA analyses,
 7 as appropriate, although these reductions would not be related to the Army 2020 reductions
 8 analyzed herein.

9 Joint Base Langley-Eustis’s 2011 baseline permanent party population was 7,382. In this SPEA,
 10 Alternative 1 assesses a potential population loss of 4,200, including approximately 3,410
 11 permanent party Soldiers and 753 Army civilians.

12 **4.26.2 Valued Environmental Components**

13 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 14 significant, adverse environmental impacts are anticipated for Joint Base Langley-Eustis; however,
 15 significant socioeconomic impacts are anticipated under Alternative 1—Implement Force
 16 Reductions. Table 4.26-1 summarizes the anticipated impacts to VECs under each alternative.

17 **Table 4.26-1. Joint Base Langley-Eustis Valued Environmental Component Impact**
 18 **Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	Negligible	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Negligible	Beneficial
Biological Resources	Minor	Minor
Wetlands	Minor	Beneficial
Water Resources	Negligible	Negligible
Facilities	Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Less than Significant	Beneficial

1 **4.26.3 Air Quality**

2 **4.26.3.1 Affected Environment**

3 The air quality affected environment of the Joint Base Langley-Eustis ROI remains the same as
4 described in Section 4.11.2.1 of the 2013 PEA. Hampton and Newport News, Virginia, are
5 maintenance areas for the 1997 O₃ standard. The Joint Base Langley-Eustis area has not been
6 designated as a nonattainment area for any criteria pollutants (EPA, 2013).

7 **4.26.3.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
10 emissions at current levels would result in minor, adverse impacts to air quality. Air quality
11 impacts of the No Action Alternative for this SPEA remain the same as described in the
12 2013 PEA.

13 **Alternative 1—Implement Force Reductions**

14 The 2013 PEA concluded that force reductions at Joint Base Langley-Eustis would result in
15 minor, beneficial impacts to air quality because of reduced operations and maintenance activities
16 and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the
17 further force reductions proposed under Alternative 1 would continue to be beneficial assuming a
18 corresponding decrease in operations and vehicle travel to and from Joint Base Langley-Eustis.
19 The size of this beneficial impact under Alternative 1 would be roughly double that anticipated at
20 the time of the 2013 PEA. The Army is committed to ensuring that personnel cuts will not result
21 in Army non-compliance with air quality regulations. However, management at Joint Base
22 Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance
23 regarding overall air quality regulations would continue to be met by the Air Force.

24 **4.26.4 Airspace**

25 **4.26.4.1 Affected Environment**

26 Airspace is among the VECs excluded from detailed analysis in the 2013 PEA as described in
27 Section 4.11.1.1 because of lack of significant, adverse environmental impacts from
28 implementing alternatives included in that analysis. No changes have occurred to the affected
29 environment since 2013. As described in the 2013 PEA, airspace at Joint Base Langley-Eustis is
30 primarily from Felker AAF, which contains a 3,020 foot by 75 foot asphalt runway. It services
31 various military rotor-wing aircraft from the U.S. Army and U.S. Navy. Additionally, according
32 to the 2013 PEA, certain U.S. Army fixed-wing aircraft (twin engine turbo propeller) utilize
33 the airfield.

1 **4.26.4.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA VEC dismissal statement concluded that there would be negligible impacts to
4 airspace at Joint Base Langley-Eustis under the No Action Alternative. For the current analysis,
5 Joint Base Langley-Eustis would continue to maintain current airspace operations and current
6 airspace classifications and restrictions are sufficient to meet current airspace requirements, and
7 impacts to airspace would remain the same as described in the 2013 PEA.

8 **Alternative 1—Implement Force Reductions**

9 The analysis of force reductions in the 2013 PEA concluded that negligible impacts to airspace
10 would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of proposed
11 further force reductions would continue negligible, adverse impacts to airspace. Reductions at
12 Joint Base Langley-Eustis would not result in changes to airspace classifications nor would it
13 change the frequency or intensity of activities at Joint Base Langley-Eustis that require the use
14 of airspace.

15 **4.26.5 Cultural Resources**

16 **4.26.5.1 Affected Environment**

17 The affected environment for cultural resources at Joint Base Langley-Eustis has not changed
18 since 2013, as described in Section 4.11.3 of the 2013 PEA.

19 **4.26.5.2 Environmental Effects**

20 **No Action Alternative**

21 Implementation of the No Action Alternative would result in minor impacts to cultural resources
22 as described in Section 4.11.3.2 of the 2013 PEA. Activities with the potential to affect cultural
23 resources would continue to be monitored and regulated through the use of existing agreements
24 and/or preventative and minimization measures.

25 **Alternative 1—Implement Force Reductions**

26 As described in Section 4.11.3.2 of the 2013 PEA, Alternative 1 would have a minor impact on
27 cultural resources. The effects of this alternative are considered to be similar to the No Action
28 Alternative –future activities with the potential to effect cultural resources would continue to be
29 monitored and the impacts reduced through preventative and minimization measures. This
30 alternative could result in some beneficial effects as a decrease in training activities could reduce
31 the potential for inadvertent disturbance of archaeological resources. Additionally, with fewer
32 people to support, there may be a reduction in the number of undertakings with the potential to
33 affect cultural resources.

1 As discussed in Chapter 1, the potential demolition of existing buildings or placing them in
2 caretaker status as a result of Army force reductions is not reasonably foreseeable and not part of
3 the scope of this SPEA. Therefore, potential impacts to cultural resources from these activities
4 are not analyzed. If future site-specific analysis indicates that it is necessary to vacate or
5 demolish structures as a result of Army force reductions, potential impacts could be analyzed in
6 separate, future NEPA analyses and consultation conducted, as appropriate, by Joint Base
7 Langley-Eustis to avoid, minimize, and/or mitigate these effects.

8 **4.26.6 Noise**

9 **4.26.6.1 Affected Environment**

10 Noise is among the VECs excluded from detailed analysis in the 2013 PEA as described in
11 Section 4.11.1.1. Existing noise sources and noise contours have not changed from the
12 2013 PEA.

13 **4.26.6.2 Environmental Effects**

14 **No Action Alternative**

15 The 2013 PEA anticipated no substantial changes in noise sources at Joint Base Langley-Eustis.
16 Under the No Action Alternative, there would be no expected changes and impacts to noise
17 would continue to be negligible.

18 **Alternative 1—Implement Force Reductions**

19 The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in a
20 slight beneficial noise impact since there would be a decreased use of firing ranges and a
21 reduction in noise from military vehicles but no changes in aviation. The beneficial impact under
22 Alternative 1 would be similar to that described in the 2013 PEA. Installation management at
23 Joint Base Langley-Eustis is under the authority of the Air Force; therefore, health and safety
24 requirements, including noise compliance, would continue to be met by the Air Force. The Army
25 is committed, however, to ensuring that personnel cuts will not result in the Army's non-
26 compliance with noise ordinances and regulations.

27 **4.26.7 Soils**

28 **4.26.7.1 Affected Environment**

29 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
30 Section 4.11.1.2 due to lack of significant, adverse environmental impacts resulting from the
31 implementation of alternatives included in this analysis. No changes have occurred to the
32 affected environment since 2013.

1 **4.26.7.2 Environmental Effects**

2 **No Action Alternative**

3 Implementation of the No Action Alternative would result in negligible impacts to soils and the
4 affected environment would remain in its present state.

5 **Alternative 1—Implement Force Reductions**

6 Per Section 4.11.1.2 of the 2013 PEA, there would be negligible, beneficial impacts to soils
7 under Alternative 1. The installation would continue to manage its resources in accordance with
8 the installation INRMP. Under Alternative 1 of this SPEA, impacts to soils could conceivably
9 occur if the further force reductions decreased environmental staffing levels to a point where
10 environmental compliance could not be properly implemented. However, environmental
11 compliance at Joint Base Langley-Eustis is under the authority of the Air Force, so measures to
12 maintain compliance regarding soils management would continue to be met by the Air Force.
13 The Army is committed, however, to ensuring that personnel cuts will not result in Army non-
14 compliance with regulations affecting soils. Therefore, impacts under Alternative 1 at Joint Base
15 Langley-Eustis would be beneficial and remain the same as those discussed in Section 4.3.7.2 of
16 the 2013 PEA.

17 **4.26.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 18 **Species)**

19 **4.26.8.1 Affected Environment**

20 The affected environment on Joint Base Langley-Eustis is described in Section 4.11.4.1 of the
21 2013 PEA. No threatened or endangered species are known to be present on the installation;
22 however, six bald eagle nesting sites, which are protected under the Migratory Bird Treaty Act,
23 are present on the installation. No changes have occurred to the affected environment since 2013.

24 **4.26.8.2 Environmental Effects**

25 **No Action Alternative**

26 Implementation of the No Action Alternative would result in minor, adverse impacts to
27 biological resources. Biological resources on Joint Base Langley-Eustis would continue to be
28 managed in accordance with the current installation INRMP to further minimize and monitor any
29 potential impacts.

30 **Alternative 1—Implement Force Reductions**

31 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts to
32 biological resources would occur on Joint Base Langley-Eustis. The Army anticipates that
33 further proposed reduction in forces (Alternative 1 of this SPEA) would not change this finding
34 because Alternative 1 does not involve major changes to the installation operations or types of

1 activities conducted on Joint Base Langley-Eustis, only a decrease in the frequency of training
2 activities. However, environmental compliance at Joint Base Langley-Eustis is under the
3 authority of the Air Force, so measures to maintain compliance regarding natural resource
4 management would continue to be met by the Air Force. The Army is committed, however, to
5 ensuring that personnel cuts will not result in Army non-compliance with natural
6 resources regulations.

7 **4.26.9 Wetlands**

8 **4.26.9.1 Affected Environment**

9 The wetlands affected environment on the installation remains the same as was discussed in
10 Section 4.11.7.1 of the 2013 PEA.

11 **4.26.9.2 Environmental Effects**

12 **No Action Alternative**

13 Under the No Action Alternative in the 2013 PEA, minor, adverse impacts to wetlands were
14 anticipated from continued training schedules. Potential wetland impacts would be reviewed and
15 managed to be avoided, to the extent practicable, or mitigated for. Impacts under the No Action
16 Alternative on Joint Base Langley-Eustis remain the same as those discussed in Section 4.11.7.2
17 of the 2013 PEA.

18 **Alternative 1—Implement Force Reductions**

19 Under Alternative 1 of the 2013 PEA, beneficial impacts to wetlands were anticipated as a result
20 of less use of roads, ranges, and training areas. Less sedimentation and vegetation loss were
21 anticipated, and degraded wetlands were expected to restore towards their reference functions
22 and values. Impacts to wetlands could conceivably occur if the further force reductions decreased
23 environmental staffing levels to a point where environmental compliance could not be properly
24 implemented. However, environmental compliance at Joint Base Langley-Eustis is under the
25 authority of the Air Force, so measures to maintain compliance regarding wetland management
26 and compliance would continue to be met by the Air Force. The Army is committed, however, to
27 ensuring that personnel cuts will not result in Army non-compliance with wetland regulations
28 Therefore, impacts under Alternative 1 of this SPEA at Joint Base Langley-Eustis would be
29 beneficial and remain the same as those discussed in Section 4.11.7.2 of the 2013 PEA.

30 **4.26.10 Water Resources**

31 **4.26.10.1 Affected Environment**

32 Water resources are among the VECs excluded from detailed analysis as described in Section
33 4.11.1.1 of the 2013 PEA due to lack of significant, adverse environmental impacts resulting

1 from the implementation of alternatives included in this analysis. No changes have occurred to
2 the affected environment since 2013.

3 **4.26.10.2 Environmental Effects**

4 **No Action Alternative**

5 Implementation of the No Action Alternative would result in negligible impacts to water
6 resources similar to those described in Section 4.11.1.1 of the 2013 PEA. The water supply and
7 wastewater systems on the installation are adequate to support water resources needs and there
8 would be no change to the water resources as described in the 2013 PEA.

9 **Alternative 1—Implement Force Reductions**

10 The analysis of Alternative 1 in the 2013 PEA concluded that negligible impacts to water
11 resources, including water demand and treatment, wastewater flow, and unpermitted discharges
12 would occur on Joint Base Langley-Eustis. Although available water and wastewater treatment
13 capacity would increase these impacts would be negligible. Reductions in training activities
14 would decrease surface water impacts from sedimentation and stormwater runoff. Joint Base
15 Langley-Eustis anticipates that further proposed reduction in forces under Alternative 1 of this
16 SPEA would not change this finding because this alternative does not involve major changes to
17 installation operations or types of activities conducted on Joint Base Langley-Eustis, only a
18 decrease in the frequency of training activities. The installation would continue to manage its
19 water resources in accordance with applicable federal and state water quality criteria, drinking
20 water standards, and stormwater and floodplain management requirements.

21 Adverse water resources impacts could conceivably occur if personnel cuts prevented
22 environmental compliance from being implemented. However, environmental compliance at
23 Joint Base Langley-Eustis is under the authority of the Air Force, so measures to maintain
24 compliance regarding water resource regulations would continue to be met by the Air Force. The
25 Army is committed, however, to ensuring that personnel cuts will not result in Army non-
26 compliance with water quality regulations.

27 **4.26.11 Facilities**

28 **4.26.11.1 Affected Environment**

29 The facilities affected environment of the Joint Base Langley-Eustis installation remains the
30 same as was discussed in Section 4.11.6.1 of the 2013 PEA.

1 **4.26.11.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse
4 impacts to facilities at Joint Base Langley-Eustis. For the current analysis, Joint Base Langley-
5 Eustis would continue to operate their current facilities and upgrade and remove facilities as
6 funds become available so impacts to facilities would remain the same as for the 2013 PEA.

7 **Alternative 1—Implement Force Reductions**

8 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
9 would occur at Joint Base Langley-Eustis. Under Alternative 1, implementation of the proposed
10 further force reductions would result in overall minor, adverse impacts. Impacts would occur
11 from the fact that future, programmed construction or expansion projects may not occur or could
12 be downscoped; moving occupants of older, underutilized, or excess facilities into newer
13 facilities may require modifications to existing facilities; and a greater number of buildings on
14 the installation may become vacant or underutilized due to reduced requirements for facilities,
15 which would have a negative impact on overall space utilization. Some beneficial impacts are
16 also expected as a result of force reductions such as reduced demands for utilities and reduced
17 demands for training facilities and support services. The force reductions would also provide the
18 installation the opportunity to reduce reliance on relocatable facilities and some older buildings
19 not up to current standards. Some permanent facilities may be re-designated to support units
20 remaining at Joint Base Langley-Eustis to provide more space and facilities that are better able to
21 meet tenant and Army needs. As discussed in Chapter 1, the demolition of existing buildings or
22 placing them in caretaker status as a result of the reduction in forces is not reasonably
23 foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these
24 activities are not analyzed.

25 If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air
26 Force-managed joint base, the Air Force could conduct any required site-specific NEPA
27 analyses, as appropriate, and make the final determinations regarding disposition of these
28 affected facilities and/or training areas.

29 **4.26.12 Socioeconomics**

30 **4.26.12.1 Affected Environment**

31 The Joint Base Langley-Eustis was established as a result of the 2005 BRAC, during which time
32 Air Force and Army installation management functions were combined into the new installation.
33 The installation is located near the cities of Hampton and Newport News, Virginia. The ROI for
34 this analysis includes those areas that are generally considered the geographic extent to which the
35 majority of installation's Soldiers, Army civilians, and contractor personnel, and their Families
36 reside. The Joint Base Langley-Eustis ROI for this analysis includes the cities of Hampton,

1 Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James City,
2 and York.

3 This section provides a summary of demographic and economic characteristics within the ROI.
4 These indicators are described in greater detail in Section 4.11.7 of the 2013 PEA. However,
5 some demographic and economic indicators have been updated where more current data
6 are available.

7 **Population and Demographics**

8 Using 2011 as a baseline, Joint Base Langley-Eustis has a total working population of 12,842
9 consisting of active component Soldiers and Army civilians, students and trainees, and other
10 military services, civilians, and contractors. Of the total working population, 7,382 were
11 permanent party Soldiers and Army civilians. The population that lives on Joint Base Langley-
12 Eustis consists of 2,041 Soldiers and their estimated 2,327 Family members, for a total on-
13 installation resident population of 4,368 (Joint Base Langley-Eustis, n.d.). The portion of
14 Soldiers and Army civilians living off the installation in 2011 was estimated to be 13,449 and
15 consists of Soldiers, Army civilians, and their Family members.

16 Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers. Students are
17 based at Joint Base Langley-Eustis for the expected length of their assigned curriculum, which
18 may range from 5 weeks to 7 months. Joint Base Langley-Eustis averages approximately 2,500
19 students assigned for training and can accommodate up to 2,258 in on-installation housing. On-
20 installation housing includes 1,791 spaces for IET, 175 spaces for AIT, and 192 for the NCO
21 Academy (Joint Base Langley-Eustis, 2014a). Any remaining students would be accommodated
22 in local lodging facilities or rental units.

23 In 2012, the ROI had a population of 516,882. Between 2010 and 2012, total population
24 increased in the counties of Gloucester, James City and York and the city of Williamsburg. The
25 cities of Hampton, Newport News, and Poquoson experienced a slight decline in population
26 during this period (Table 4.26-2). As shown in Table 4.26-3, the racial and ethnic composition of
27 geographies within the ROI varies significantly. In the city of Hampton, more than 49 percent of
28 residents are African American while in the city of Poquoson more than 90 percent of the
29 population is non-Hispanic White alone (U.S. Census Bureau, 2012a).

1 **Table 4.26-2. Population and Demographics, 2012**

Region of Influence Counties/Cities	Population	Population Change 2010–2012 (percent)
Gloucester County, Virginia	36,905	0.1
James City County, Virginia	69,061	3.1
York County, Virginia	66,090	1.4
City of Hampton, Virginia	136,836	-0.5
City of Newport News, Virginia	180,726	-0.1
City of Williamsburg, Virginia	15,167	7.8
City of Poquoson, Virginia	12,097	-0.5

2 **Table 4.26-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties / Cities	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Virginia	71.1	19.7	0.5	6.0	2.6	8.4	64.1
Gloucester County, Virginia	88.0	8.5	0.4	0.9	2.2	2.7	85.8
James City County, Virginia	81.3	13.5	0.4	2.3	2.4	5.1	76.9
York County, Virginia	77.4	13.4	0.5	5.3	3.2	5.1	73.4
City of Hampton, Virginia	42.7	49.6	0.4	2.2	3.7	4.5	41.0
City of Newport News, Virginia	49.0	40.7	0.5	2.7	4.3	7.5	46.0
City of Williamsburg, Virginia	74.0	14.0	0.3	5.7	3.5	6.7	70.7
City of Poquoson, Virginia	95.1	0.6	0.3	2.1	1.4	1.8	93.8

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Income**

5 Information presented in Table 4.26-4 represents an update from the 2013 PEA, which provided
 6 employment and income data from 2009. Between 2000 and 2012, total employment increased
 7 the most significantly in James City County. The only geographic area in the ROI that

1 experienced a decline in employment was the city of Hampton (U.S. Census Bureau,
 2 2000; 2012b).

3 **Table 4.26-4. Employment and Income, 2012**

State and Region of Influence Counties/Cities	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Virginia	3,989,521	+12.6	249,700	63,636	11.1
Gloucester County, Virginia	18,216	+6.0	229,100	60,752	9.1
James City County, Virginia	31,041	+39.1	336,600	76,767	8.7
York County, Virginia	33,147	+14.6	324,200	82,454	5.4
City of Hampton, Virginia	65,737	-2.6	197,300	51,584	14.7
City of Newport News, Virginia	92,192	+4.8	205,800	50,744	14.5
City of Williamsburg, Virginia	5,727	+32.2	326,200	50,865	18.4
City of Poquoson, Virginia	6,078	+6.1	316,000	85,033	4.1

4 The median household income in the cities of Hampton, Newport News, and Williamsburg is
 5 lower than ROI counties for Joint Base Langley-Eustis and Virginia overall. James City and
 6 York counties report a median household income greater than the Virginia average. Gloucester
 7 County has a median household income slightly lower than the Virginia average (U.S. Census
 8 Bureau, 2012b).

9 The median home value in ROI counties is greater than that of Virginia and those cities for
 10 which income is reported with the exception of Poquoson. The cities of Hampton and Newport
 11 News both report median home values lower than the Virginia average (U.S. Census
 12 Bureau, 2012b).

13 The percentage of those living below the poverty line in all ROI counties is lower than the
 14 Virginia average. The cities of Hampton, Newport News, and Williamsburg report a greater
 15 concentration of those living below the poverty line than ROI counties or Virginia overall (U.S.
 16 Census Bureau, 2012b).

1 Information regarding the workforce by industry for each county and independent city within the
2 ROI was obtained from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information
3 presented below is for the employed labor force.

4 ***Gloucester County, Virginia***

5 The educational services, and health care and social assistance sector accounts for the greatest
6 share of the total workforce in Gloucester County (22 percent). Retail trade is the largest
7 employment sector (13 percent), followed by manufacturing (11 percent). The professional,
8 scientific, and management, and administrative and waste management services also accounts for
9 a notable share of the total workforce in Gloucester County (10 percent). The Armed Forces
10 account for 2 percent of the of the Gloucester County workforce. The nine remaining sectors
11 employ 42 percent of the workforce.

12 ***James City County, Virginia***

13 Similar to Gloucester County, the educational services, and health care and social assistance
14 sector accounts for the greatest share of James City County's total workforce (26 percent). The
15 professional, scientific, and management, and administrative and waste management services as
16 well as the arts, entertainment, and recreation, and accommodation and food services both
17 account for 12 percent of the total workforce, followed by retail trade (11 percent). The Armed
18 Forces account for 2 percent of the James City County workforce. The nine remaining sectors
19 account for 37 percent of the workforce.

20 ***York County, Virginia***

21 The educational services, and health care and social assistance sector accounts for the greatest
22 share of the total workforce in York County (21 percent). Public administration and the
23 professional, scientific, and management, and administrative and waste management services
24 sectors individually account for 12 percent of the total workforce, followed by the Armed Forces
25 (11 percent). The 10 remaining sectors employ 44 percent of the workforce.

26 ***City of Hampton, Virginia***

27 The educational services, and health care and social assistance sector accounts for the greatest
28 share of the total workforce in the city of Hampton (20 percent). Retail trade and manufacturing
29 each individually account for 11 percent of the total workforce, followed by the professional,
30 scientific, and management, and administrative and waste management services sector (10
31 percent). The Armed Forces account for 8 percent of the city of Hampton workforce. The nine
32 remaining sectors employ 40 percent of the workforce.

33 ***City of Newport News, Virginia***

34 Similar to other areas within the ROI, educational services, and the health care and social
35 assistance sector is the primary employment sector in the city of Newport News (19 percent).

1 Retail trade is the second largest employment sector (12 percent), followed by manufacturing (11
2 percent). The professional, scientific, and management, and administrative and waste
3 management services and the arts, entertainment, and recreation, and accommodation and food
4 services sectors individually account for 10 percent of the total workforce. The Armed Forces
5 account for 9 percent of city of Newport News' workforce. The eight remaining sectors account
6 for 29 percent of the workforce.

7 **City of Poquoson, Virginia**

8 The educational services, and health care and social assistance sector accounts for the greatest
9 share of the total workforce in Poquoson County (20 percent). The professional, scientific, and
10 management, and administrative and waste management services is the second largest
11 employment sector (14 percent), followed by manufacturing (13 percent). The Armed Forces
12 account for 3 percent of the Poquoson County workforce. The 10 remaining sectors employ 50
13 percent of the workforce.

14 **City of Williamsburg, Virginia**

15 The educational services, and the health care and social assistance sector accounts for the
16 greatest share of the total workforce in the city of Williamsburg (37 percent). The arts,
17 entertainment, and recreation, and accommodation and food services sector is the second largest
18 employment sector (20 percent), followed by retail trade (10 percent). The Armed Forces
19 account for 1 percent of the city of Williamsburg's workforce. The 10 remaining sectors employ
20 32 percent of the workforce.

21 **Housing**

22 Family housing on the installation is a privatized function under the RCI program. The program
23 falls under a 75-year lease. The housing partner manages 880 homes spread across 26 acres.
24 Approximately 1,800 people to 2,200 people occupy these homes.

25 The current barrack capacity is 4,248 spaces, which includes 2,732 spaces for permanent party
26 Soldiers and trainees and 1,516 spaces for the Warrior Transition Unit, reserves, and others. The
27 128th Aviation Brigade can billet up to 2,258, which includes 1,791 spaces for IET Soldiers,
28 175 spaces for AIT Soldiers, and 192 spaces for those enrolled in the NCO Academy (Joint Base
29 Langley-Eustis, 2014a).

30 **Schools**

31 There is one elementary school located on the installation. The General Stanford Elementary
32 School, which is part of the Newport News School District, has an enrollment of approximately
33 500 students. The majority of students reside on the installation; however, some non-military
34 connected students living in the ROI attend this school (Sugg, 2014a). As described in the 2013
35 PEA, approximately 42 percent of those enrolled at Lee Hall Elementary School, the closest
36 elementary school to the installation, are military connected.

1 Middle and high school age students residing on the installation attend schools in the Newport
2 News Public School District (Sugg, 2014a). Some students may also attend private school or be
3 home schooled.

4 **Public Health and Safety**

5 DES includes the Provost Marshal Office, Fire Department, and Intelligence and Security Office,
6 which provide emergency services on the installation. The fire department has a mutual aid
7 agreement with the city of Newport News (Sugg, 2014b).

8 **Family Support Services**

9 Joint Base Langley-Eustis FMWR and ACS provide programs, services, facilities, and
10 information for Soldiers and their Families. Services range from child care and youth programs
11 to deployment, employment, financial, and relocation readiness, among others.

12 **Recreation Facilities**

13 Joint Base Langley-Eustis FMWR oversees a variety of CYSS as well as recreational
14 opportunities for adults. Available facilities and opportunities include physical fitness centers,
15 golf courses, bowling centers, indoor and outdoor swimming pools, and recreational camp and
16 beach activities areas, among others.

17 **4.26.12.2 Environmental Effects**

18 **No Action Alternative**

19 The continuation of operations at Joint Base Langley-Eustis represents a beneficial source of
20 regional economic activity. No additional impacts to housing, public and social services, public
21 schools, public safety, or recreational activities are anticipated.

22 **Alternative 1—Implement Force Reductions**

23 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
24 significant impact to socioeconomic resources. The description of impacts to the various
25 components of socioeconomics is presented below.

26 ***Population and Economic Impacts***

27 Alternative 1 would result in the loss of up to 4,163³² Army positions (3,410 Soldiers and 753
28 Army civilians), each with an average annual income of \$46,760 and \$78,963, respectively. In
29 addition, this alternative would affect an estimated 6,319 Family members, including 2,323

³² This number was derived by assuming the loss of 70 percent of Joint Base Langley-Eustis's Soldiers and 30 percent of the Army civilians to arrive at 4,163. The 2013 PEA assumed the loss of 35 percent of Joint Base Langley-Eustis's Soldiers and 15 percent of the Army civilians to arrive at 2,730.

1 spouses and 3,996 children. The total population of Army employees and their Family members
 2 directly affected by the Alternative 1 would be projected to be 10,482. In accordance with the
 3 EIFS analysis, a significant impact is defined as a situation when the forecast value falls outside
 4 the historical positive and negative range. Table 4.26-5 shows the deviation from the historical
 5 average that would represent a significant change for each parameter. The last row summarizes
 6 the deviation from the historical average for the estimated demographic and economic impacts
 7 under Alternative 1 (forecast value) as estimated by the EIFS model. The last row summarizes
 8 the estimated economic impacts of Alternative 1 to the region as estimated by the EIFS model.
 9 Based on the EIFS analysis, there would not be a significant impact to sales and income because
 10 the estimate percentage change is within the historical range. However, there would be
 11 significant employment and population impacts because the estimated percentage change is
 12 outside the historical range.

13 **Table 4.26-5. Economic Impact Forecast System and Rational Threshold Value**
 14 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+12.1	+4.2	+3.9	+1.6
Economic contraction significance value	-6.2	-3.9	-2.7	-0.8
Forecast value	-1.4	-2.2	-3.1	-2.5

15
 16 Table 4.26-6 summarizes the predicted impacts to income, employment, and population of force
 17 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 18 percent change from the historical average, the percentages in the following table show the
 19 economic impact as a percent of 2012 demographic and economic data. Although not in exact
 20 agreement with the EIFS forecasted values, the income and population figures show the same
 21 significance determinations as the EIFS predictions in the previous table. The employment
 22 percentage shows a change that falls within the historical range that would indicate a less than
 23 significant impact. To ensure the potential impacts were captured to the greatest extent possible,
 24 this employment loss will be judged significant based on the EIFS forecast value in Table 4.26-5.

25 With a potential reduction in the population in the ROI, losses in sales, income, employment, and
 26 tax receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 27 cumulative force reductions. Because of the potential loss of 4,163 Soldiers and Army civilians
 28 under Alternative 1, EIFS estimates an additional 653 direct contract service jobs would also be
 29 lost. An additional 960 induced jobs would be lost because of the reduction in demand for goods
 30 and services within the ROI. The total reduction in employment is estimated to be 5,776, a
 31 reduction of 2.3 percent from the total employed labor force in the ROI of 252,138. Income is
 32 estimated to reduce by \$283.4 million, a 1.3 percent decrease in income from 2012.

1 **Table 4.26-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-\$283,369,100	-4,816 (Direct)	-10,482
		-960 (Induced)	
		-5,776 (Total)	
Total 2012 ROI economic estimates	\$22,496,497,000	252,138	516,882
Percent reduction of 2012 figures	-1.3	-2.3	-2.0

2 Note: Sales estimates are not consistently available from public sources for all counties in the United
 3 States; therefore, the sales data for counties are not presented in this table. The estimated
 4 reduction in total sales from EIFS is described in the paragraphs below.

5 Under Alternative 1, the total reduction in sales within the ROI is estimated to be \$312.4 million.
 6 There would also be a loss in sales tax receipts to local and state governments. The average state
 7 and local sales tax rate for Virginia is 5.6 percent (Tax Foundation, 2014). To estimate sales tax
 8 reductions, information on the proportion of sales that would be subject to sales tax on average
 9 across the country was utilized. According to the U.S. Economic Census an estimated 16 percent
 10 of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage and
 11 applicable tax rate was applied to the estimated decrease in sales of \$312.4 million, resulting in
 12 an estimated sales tax receipts decrease of \$2.8 million under Alternative 1 if all sales occurred
 13 in Virginia.

14 Of the 516,882 people (including those residing on Joint Base Langley-Eustis) who live within
 15 the ROI, 4,163 military employees and their estimated 6,319 Family members are predicted to no
 16 longer reside in the area under Alternative 1, resulting in a population reduction of 2.0 percent.
 17 This number likely overstates potential population impacts because some of the people no longer
 18 employed by the military would continue to live and work within the ROI, finding employment
 19 in other industry sectors.

20 In addition, students and trainees at Joint Base Langley-Eustis may have a substantial impact on
 21 the local economy through lodging, eating, and shopping expenditures. Additionally, formal
 22 graduation ceremonies generate demand for lodging and dining facilities when Family members
 23 attend. The impact to Joint Base Langley-Eustis's training missions cannot be determined until
 24 after the Army completes its force structure decisions; therefore, analyzing the impact to those
 25 missions is beyond the scope of this document.

26 **Housing**

27 Alternative 1 would increase the availability of barracks space for unaccompanied personal and
 28 increase the availability of Family quarters. This reduction along with the completion of the new
 29 AIT barracks complex would facilitate the demolition of four 1950-era barracks. The reduction
 30 would also increase the availability of Family quarters, which are currently running at greater
 31 than 96 percent occupancy, as described in the 2013 PEA. These outcomes will likely decrease

1 the off-installation demand for rentals and purchases of housing, potentially leading to slight
2 reductions in housing values. The city of Newport News would experience the greatest change in
3 housing occupancy and potentially home values. However, other areas within the ROI would
4 experience similar effects but likely not to the same extent as the city of Newport News. Because
5 of the relatively large population of the ROI, the reduced demand for housing associated with the
6 force reductions has the potential to result in minor impacts to housing within the ROI.

7 **Schools**

8 Removal of 4,163 Soldiers and Army civilians would result in a reduction of 6,319 Family
9 members, of which 3,996 would be children. Military-connected students living on Joint Base
10 Langley-Eustis attend schools on the installation and in the city of Newport News. Military-
11 connected students represent a significant share of total school district enrollment in the city of
12 Newport News. Under Alternative 1, enrollment would decrease in the Newport News School
13 District. If enrollment in individual schools is significantly impacted, schools may need to reduce
14 the number of teachers, administrators, and other staff, and potentially close or consolidate with
15 other schools should enrollment fall below sustainable levels. Enrollment information regarding
16 military-connected students who live off Joint Base Langley-Eustis is not presently available.

17 Some school districts receive sizable Federal Impact Aid funds, the allocation of which is based
18 on the number of military-connected students they support. The actual projected loss of Federal
19 Impact Aid funds cannot be determined at this time due to the variability of appropriated dollars
20 from year to year and the uncertainty regarding the specific impacts to ROI school enrollment.
21 However, it is anticipated that schools in the city of Newport News would likely need fewer
22 teachers and materials as enrollment declines, which would partially offset the reduction in
23 Federal Impact Aid funds. Overall, schools in the city of Newport News school district could
24 experience significant, adverse impacts from the decline in military-connected student
25 enrollment that would result under Alternative 1.

26 **Public Services**

27 The demand for law enforcement, medical care providers, and fire and emergency service
28 providers on the installation would decrease if Soldiers, Army civilians, and their Family
29 members affected under Alternative 1 move to areas outside the ROI. Adverse impacts to public
30 services could conceivably occur if personnel cuts were to substantially affect hospitals, military
31 police, and fire and rescue crews on the installation. These scenarios are not reasonably
32 foreseeable, however, and therefore are not analyzed. Regardless of any drawdown in military or
33 civilian personnel, the Army is committed to meeting health and safety requirements where it is
34 appropriate for them to do so on this Air Force managed joint base. Overall, minor impacts to
35 public health and safety would occur under Alternative 1. The impacts to public services are not
36 expected to be significant because the existing service level for the installation and the ROI
37 would still be available.

1 **Family Support Services and Recreation Facilities**

2 Family Support Services and recreation facilities would experience reduced demand and use and
3 subsequently, would require fewer personnel and/or reduced funding. Many of the Family
4 Support Services and all of the recreation facilities provided on Joint Base Langley-Eustis are
5 under the authority of the Air Force; therefore, measures for meeting those needs would continue
6 to be met by the Air Force. Overall, minor to significant impacts to Family Support Services and
7 recreation facilities could occur under Alternative 1.

8 **Environmental Justice and Protection of Children**

9 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
10 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
11 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
12 and adverse human health or environmental effects of its programs, policies, and activities on
13 minority and low-income populations” (EPA 1994). As shown in Table 4.26-3, the proportion of
14 minority populations is notably higher in Hampton and Newport News than the proportion in
15 other counties within the ROI and Virginia as a whole. Because minority populations are more
16 heavily concentrated in Hampton and Newport News, Alternative 1 has the potential to result in
17 adverse impacts to minority-owned and/or -staffed businesses if Soldiers and Army civilians
18 directly affected under Alternative 1 move to areas outside the ROI. Although environmental
19 justice populations could be adversely impacted under Alternative 1, the impacts are not
20 anticipated to disproportionately affect these populations.

21 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
22 federal agencies are required to identify and assess environmental health and safety risks that
23 may disproportionately affect children and to ensure that the activities they undertake do not
24 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
25 were to be realized, the Army is committed to implementing required environmental compliance
26 and meeting the health and safety needs of people associated with the installation, including
27 children, where it is appropriate for them to do so on this Air Force managed joint base.
28 Therefore, it is not anticipated that implementing Alternative 1 would result in any
29 environmental health and safety risks to children within the ROI. Additionally, this analysis
30 evaluates the effects associated with workforce reductions only, and any subsequent actions on
31 the installation that may require ground-disturbing activities that have the potential to result in
32 environmental health and safety risks to children, such as demolishing vacant buildings, is
33 beyond the scope of this analysis and would be evaluated in future, separate, site-specific NEPA
34 analysis by Joint Base Langley-Eustis, as appropriate.

1 **4.26.13 Energy Demand and Generation**

2 **4.26.13.1 Affected Environment**

3 The energy demand and generation affected environment of Joint Base Langley-Eustis remains
4 the same as was discussed in Section 4.11.8.1 of the 2013 PEA.

5 **4.26.13.2 Environmental Effects**

6 **No Action Alternative**

7 Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to
8 energy demand and generation at Joint Base Langley-Eustis. For the current analysis, Joint Base
9 Langley-Eustis would continue to consume similar types and amounts of energy so impacts to
10 energy demand would remain the same as for the 2013 PEA.

11 **Alternative 1—Implement Force Reductions**

12 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
13 demand and generation would occur on Joint Base Langley-Eustis. Under Alternative 1, minor,
14 beneficial impacts to energy are anticipated due to a further reduction in energy consumption
15 associated with the additional force reductions. The installation would also be better positioned
16 to meet energy and sustainability goals.

17 **4.26.14 Land Use Conflicts and Compatibility**

18 **4.26.14.1 Affected Environment**

19 Land Use is among the VECs excluded from detailed analysis in the 2013 PEA as described in
20 Section 4.11.1.1. No changes to land use have occurred since the 2013 PEA.

21 **4.26.14.2 Environmental Effects**

22 **No Action Alternative**

23 The 2013 PEA concluded that no impacts to land use are anticipated. No impacts to land use
24 would continue to be expected under the No Action Alternative.

25 **Alternative 1—Implement Force Reductions**

26 The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would not result
27 in impacts to land use. Less training would be conducted, which could potentially allow more
28 time for natural resource management or recreational land use. Under Alternative 1, impacts
29 would be similar to those described in the 2013 PEA, resulting in no impacts to land use.
30 Installation management at Joint Base Langley-Eustis is under the authority of the Air Force, so
31 measures to maintain compliance regarding land use ordinances and regulations would continue

1 to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts
2 will not result in Army non-compliance with land use ordinances and regulations.

3 **4.26.15 Hazardous Materials and Hazardous Waste**

4 **4.26.15.1 Affected Environment**

5 As described in the 2013 PEA (Section 4.11.9.1), hazardous materials are used in at Joint Base
6 Langley-Eustis. The installation has a Hazardous Waste Facility and a Solid Waste and
7 Recycling, and Pollution Prevention Center to handle all types of waste from units and facilities.
8 Hazardous materials and wastes are handled, stored and transported in accordance with state and
9 federal regulations as well as the Joint Base Langley-Eustis Instruction 32-101, *Environmental*
10 *Management*. No substantial changes have occurred to the affected environment since 2013.

11 **4.26.15.2 Environmental Effects**

12 **No Action Alternative**

13 As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action
14 Alternative. Use of hazardous materials and generation of hazardous wastes would continue on
15 Joint Base Langley-Eustis in accordance with all applicable laws, regulations and plans.

16 **Alternative 1—Implement Force Reductions**

17 The analysis of Alternative 1 in the 2013 PEA concluded that minor, adverse impacts from
18 hazardous materials and hazardous waste would occur on Joint Base Langley-Eustis. Alternative
19 1 in this SPEA is not expected to involve major changes to the installation operations or types of
20 activities conducted on Joint Base Langley-Eustis. Because of the reduced numbers of people, it
21 is likely that the potential for spills would be reduced further during training and maintenance
22 activities. The volume of waste generated and material requiring storage would increase slightly
23 because deactivating units would turn in hazardous material for storage to avoid transportation
24 risks. Under Alternative 1 in this SPEA, Joint Base Langley-Eustis would continue to implement
25 its hazardous waste management in accordance with its HWMP and applicable regulations and
26 therefore, adverse impacts would be minor.

27 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
28 environmental compliance from being implemented. However, installation management at Joint
29 Base Langley-Eustis is under the authority of the Air Force, so measures to maintain compliance
30 regarding hazardous waste management would continue to be met by the Air Force. The Army is
31 committed, however, to ensuring that personnel cuts will not result in Army non-compliance
32 with regulations governing the handling, management, disposal, and clean up, as appropriate, of
33 hazardous materials and hazardous waste. As discussed in Chapter 1, the demolition and/or
34 renovation of existing buildings as a result of the reduction in forces is not reasonably

1 foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these
2 activities are not analyzed.

3 **4.26.16 Traffic and Transportation**

4 **4.26.16.1 Affected Environment**

5 The transportation affected environment of the Joint Base Langley-Eustis ROI remains the same
6 as described in Section 4.11.10.1 of the 2013 PEA with a four-lane divided highway providing
7 primary access to and from the installation (Fort Eustis Boulevard/Virginia Route 105), and
8 connecting the installation to Warwick Boulevard (U.S. Route 60), I-64, Jefferson Avenue
9 (Virginia Route 143) and U.S. Route 17. There is also a secondary gate off Warwick Boulevard.

10 **4.26.16.2 Environmental Effects**

11 **No Action Alternative**

12 Under the No Action Alternative, the 2013 PEA anticipated less than significant, adverse
13 impacts. Current traffic conditions would remain the status quo, including increased staffing
14 from Grow the Army and BRAC 2005, resulting in adverse impacts that would continue to be
15 less than significant.

16 **Alternative 1—Implement Force Reductions**

17 The 2013 PEA concluded that the force reductions at Joint Base Langley-Eustis would result in
18 beneficial impacts to traffic and transportation systems on and off the joint base. With the
19 departure of Soldiers, Army civilians and their Family members, the Army anticipates a decrease
20 in traffic congestion, particularly during peak hours through the main ACP. Under Alternative 1,
21 these beneficial impacts would also occur, although with the proposed further reduction in forces
22 for the installation, the size of this beneficial impact under Alternative 1 would be larger than
23 anticipated at the time of the 2013 PEA.

24 **4.26.17 Cumulative Effects**

25 The ROI for the cumulative impact analysis for Joint Base Langley-Eustis includes the cities of
26 Hampton, Newport News, Poquoson, and Williamsburg, and the counties of Gloucester, James
27 City, and York. As noted in Section 4.11.11 of the 2013 PEA, a number of cumulative actions
28 within the Joint Base Langley-Eustis ROI would have the potential to cumulatively add impacts
29 to Alternative 1.

30 As determined in the 2013 PEA, cumulative impacts as a result of the implementation of
31 Alternative 1 range from beneficial to significant and adverse. The following VEC areas are
32 anticipated to experience either no impact or beneficial impact under Alternative 1: air quality,
33 noise, soil erosion, wetlands, energy demand and generation, and traffic and transportation.

1 Minor impacts are expected for cultural resources, biological resources, facilities, and hazardous
2 materials and hazardous waste.

3 **Reasonably Foreseeable Future Projects on Joint Base Langley-Eustis**

4 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
5 future projects outside Joint Base Langley-Eustis which would be appropriate for inclusion in the
6 cumulative impacts analysis

7 **Reasonably Foreseeable Future Projects outside Joint Base Langley-Eustis**

8 No additional reasonably foreseeable future projects outside Joint Base Langley-Eustis were
9 identified by the installation beyond those identified in the 2013 PEA. However, there are other
10 projects and actions that affect regional economic conditions and generally include construction
11 and development activities, infrastructure improvements, and business and government projects
12 and activities. Additionally, large economies with more job opportunities could absorb some of
13 the displaced Army workforce, lessening adverse effects of force reductions.

14 **No Action Alternative**

15 There would be no cumulative effects of the foreseeable future actions with the No Action
16 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
17 Alternative would not contribute to any changes.

18 **Alternative 1—Implement Force Reductions**

19 With the exception of socioeconomics, there would be no cumulative effects of the foreseeable
20 future actions under Alternative 1.

21 The socioeconomic impact within the ROI, as described in Section 4.26.12.2 with a reduction of
22 4,163 Soldiers and Army civilians, could lead to significant impacts to the population,
23 employment, and schools. Current and foreseeable actions include construction and development
24 activities on and off the installation, which would have beneficial impacts to the regional
25 economy through additional economic activity, jobs, and income in the ROI.

26 Additionally, stationing changes would also affect regional economic conditions through the loss
27 of jobs and income within the region, although the full extent of military service reductions on
28 the ROI is not known at this time. The Hampton Roads area, in which Joint Base Langley-Eustis
29 is located, has a very large military population that could experience a greater cumulative
30 socioeconomic impact from other military service reductions in the region when combined with
31 the Army's proposed force reductions. It is likely that there would be additional adverse effects
32 on the ROI communities, especially those with high concentrations of military residents.

33 Joint Base Langley-Eustis is a relatively large employer in the region; the Armed Forces account
34 for 11, 8, and 9 percent of the workforce in York County, city of Hampton, and city of Newport

1 News, respectively, demonstrating the importance of the joint base to the region. The cities in the
2 ROI could absorb some of the displaced workers, depending on the economy and labor market in
3 the region. If the majority of the displaced forces are not absorbed into the local labor force,
4 there would be additional adverse impacts.

5 Joint Base Langley-Eustis provides Aviation Maintenance training for Soldiers, averaging
6 approximately 2,500 students assigned for training at a time. Cumulative actions could include
7 reduced training opportunities because of the force reductions on Joint Base Langley-Eustis. This
8 could lead to further adverse impacts to socioeconomic conditions because of reduced temporary
9 population and visitors and the attendant economic activity, spending, and jobs and income they
10 support. Alternative 1 and the loss of approximately 4,200 Soldiers and Army civilians, in
11 combination with current and foreseeable future actions, could have significant impacts to
12 population, employment, tax receipts, housing values, and schools in the ROI.

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1 **4.27 Joint Base Lewis-McChord, Washington**

2 **4.27.1 Introduction**

3 Joint Base Lewis-McChord was analyzed in the 2013 PEA. Background information on the
 4 installation, including location, tenants, mission, and population, is discussed in Section 4.12.1 of
 5 the 2013 PEA.

6 Joint Base Lewis-McChord’s 2011 baseline permanent party population was 36,222. In this
 7 SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately
 8 14,459 permanent party Soldiers and 1,541 Army civilians.

9 **4.27.2 Valued Environmental Components**

10 For alternatives the Army is considering as part of its 2020 force structure realignment, no
 11 significant, adverse environmental impacts are anticipated for Joint Base Lewis-McChord;
 12 however, significant socioeconomic impacts are anticipated under Alternative 1—Implement
 13 Force Reductions. Table 4.27-1 summarizes the anticipated impacts to VECs under
 14 each alternative.

15 **Table 4.27-1. Joint Base Lewis-McChord Valued Environmental Component Impact**
 16 **Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Less than Significant	Beneficial
Airspace	Significant	Negligible
Cultural Resources	Less than Significant	Minor
Noise	Significant	Beneficial
Soils	Negligible	Negligible
Biological Resources	Less than Significant	Beneficial
Wetlands	Negligible	Negligible
Water Resources	Less than Significant	Beneficial
Facilities	Less than Significant	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	Minor	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Less than Significant
Traffic and Transportation	Significant	Beneficial

1 **4.27.3 Air Quality**

2 **4.27.3.1 Affected Environment**

3 The air quality affected environment of the Joint Base Lewis-McChord ROI remains the same as
4 described in Section 4.12.2.1 of the 2013 PEA. Portions of Pierce County are designated
5 maintenance areas for CO and PM₁₀. The Joint Base Lewis-McChord area has not been
6 designated as a nonattainment area for any criteria pollutants (EPA, 2013a).

7 **4.27.3.2 Environmental Effects**

8 **No Action Alternative**

9 Under the No Action Alternative, the 2013 PEA concluded mobile and stationary source
10 emissions at current levels, as well as controlled burns for vegetation management, would
11 continue to result in less than significant impacts to air quality. Air quality impacts under the No
12 Action Alternative for this SPEA remain the same as described in the 2013 PEA.

13 **Alternative 1—Implement Force Reductions**

14 The 2013 PEA concluded that force reductions at Joint Base Lewis-McChord would result in
15 minor, beneficial impacts to air quality because of reduced operations and maintenance activities
16 and reduced vehicle miles travelled associated with the facility. Impacts to air quality from the
17 further force reductions proposed under Alternative 1 would continue to be beneficial assuming a
18 corresponding decrease in operations and vehicle travel to and from Joint Base Lewis-McChord.

19 As discussed in Chapter 1, the demolition of existing buildings or placing them in caretaker
20 status as a result of the force reductions is not reasonably foreseeable and not part of the scope of
21 this SPEA; therefore, potential impacts to air quality from these activities are not analyzed.

22 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
23 with air quality regulations. Even if the full end-strength reductions were to be realized at Joint
24 Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the
25 installation would comply with all mandatory environmental regulations.

26 **4.27.4 Airspace**

27 **4.27.4.1 Affected Environment**

28 The airspace affected environment for Joint Base Lewis-McChord remains the same as described
29 in Section 4.3.3.1 of the 2013 PEA.

1 **4.27.4.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative, impacts to airspace would continue to be significant. As noted
4 in the 2013 PEA, Joint Base Lewis-McChord would maintain existing airspace operations.

5 **Alternative 1—Implement Force Reductions**

6 Force reductions under Alternative 1 are not expected to alter Joint Base Lewis-McChord use of
7 aviation assets or current airspace use. The implementation of Alternative 1 is expected to have
8 no additional adverse impacts; therefore, environmental effects are anticipated to be negligible.

9 **4.27.5 Cultural Resources**

10 **4.27.5.1 Affected Environment**

11 The affected environment for cultural resources at Joint Base Lewis-McChord has not changed
12 since 2013, as described in Section 4.12.4 of the 2013 PEA.

13 **4.27.5.2 Environmental Effects**

14 **No Action Alternative**

15 Section 4.12.4.2 of the 2013 PEA states that the No Action Alternative would result in less than
16 significant impacts to cultural resources. Existing protocols and procedures outlined in the Joint
17 Base Lewis-McChord ICRMP and other agreements outline the process for managing and
18 protecting cultural resources at the installation. All activities with the potential to affect cultural
19 resources would continue to be monitored and regulated through the use of existing agreements
20 and/or preventative and minimization measures. Therefore, the No Action Alternative would
21 continue to have less than significant impacts to cultural resources.

22 **Alternative 1—Implement Force Reductions**

23 The effects of force reduction on cultural resources were described as significant but mitigable in
24 Section 4.12.4.2 of the 2013 PEA due to potential impacts to cultural resources from facility
25 demolition or abandonment. As discussed in Chapter 1, the demolition of existing buildings or
26 placing them in caretaker status as a result of the reduction in forces is not reasonably
27 foreseeable and not part of the scope of this SPEA; therefore, potential impacts from these
28 activities are not analyzed.

29 The Army is committed, however, ensuring that personnel cuts will not result in non-compliance
30 with cultural resources regulations. Even if the full end-strength reductions were to be realized at
31 Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the
32 installation would comply with all mandatory environmental regulations. If future analysis
33 indicates that it is necessary to vacate or demolish structures as a result of troop reductions, the

1 installation would comply with applicable laws, such as NHPA, and conduct the necessary
2 analyses and consultation to avoid, minimize, and/or mitigate these effects. Therefore, the
3 implementation of this alternative would result in minor impacts to cultural resources.

4 This alternative could result in minor, beneficial effects as a decrease in training activities could
5 reduce the potential for inadvertent disturbance of archaeological or tribal resources.
6 Additionally, with fewer people to support, there may be a reduction in the number of
7 undertakings with the potential to affect cultural resources. However, as noted in Section
8 4.12.4.2 of the 2013 PEA, there is the potential for future, adverse impacts to historic buildings
9 and districts if troop reduction results in the need to vacate or demolish these resources.

10 **4.27.6 Noise**

11 **4.27.6.1 Affected Environment**

12 The noise affected environment of Joint Base Lewis-McChord remains the same as described in
13 Section 4.12.5.1 of the 2013 PEA. Primary sources of noise at Joint Base Lewis-McChord
14 include aviation, munitions detonations, and gunnery.

15 **4.27.6.2 Environmental Effects**

16 **No Action Alternative**

17 The 2013 PEA anticipated a significant, adverse noise impact because current operations
18 represent a significant, adverse impact. Under the No Action Alternative, there would be
19 continued significant impacts from existing training and operations.

20 **Alternative 1—Implement Force Reductions**

21 The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in
22 a less than significant noise impact since there would be a reduction in the frequency of noise
23 generating activities. The implementation of Alternative 1 of this SPEA is expected to have
24 beneficial noise impacts due to decreases in training pressure and associated noise generating
25 activities when compared to the No Action Alternative, but it is not expected to reduce Joint
26 Base Lewis-McChord below the significance threshold for noise.

27 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
28 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
29 Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the
30 installation would comply with all mandatory environmental regulations including noise
31 ordinances and regulations.

1 **4.27.7 Soils**

2 **4.27.7.1 Affected Environment**

3 Soils are among the VECs excluded from detailed analysis in the 2013 PEA as described in
4 Section 4.12.1.2 due to lack of significant, adverse environmental impacts resulting from the
5 implementation of alternatives included in this analysis. No changes have occurred to the
6 affected environment since 2013.

7 **4.27.7.2 Environmental Effects**

8 **No Action Alternative**

9 Implementation of the No Action Alternative would result in negligible impacts to soils and the
10 affected environment would remain in its present state.

11 **Alternative 1—Implement Force Reductions**

12 Per Section 4.12.1.2 of the 2013 PEA, there would be negligible impacts to soils under
13 Alternative 1. Under Alternative 1 of this SPEA, impacts to soils could conceivably occur if the
14 further force reductions decreased environmental staffing levels to a point where environmental
15 compliance could not be properly implemented. The Army is committed to ensuring that
16 personnel cuts will not result in non-compliance with regulations affecting soils. Even if the full
17 end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would
18 ensure that adequate staffing remains so that mandated environmental requirements would
19 continue to be met. Therefore, impacts under Alternative 1 at Joint Base Lewis-McChord would
20 be negligible and remain the same as those discussed in Section 4.19.7.2 of the 2013 PEA.

21 **4.27.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered
22 Species)**

23 **4.27.8.1 Affected Environment**

24 Biological resources are described in Section 4.12.6.1 of the 2013 PEA. Since the publishing of
25 that document, three species have been listed as threatened or endangered including the streaked
26 horned lark (*Eremophila alpestris strigata*), Taylor's checkerspot butterfly (*Euphydryas editha
27 taylori*), and Mazama pocket gopher (*Thomomys mazama*). The Mardon skipper butterfly
28 (*Polites mardon*) was determined to be not warranted for listing and remains a species of
29 concern. No other changes have occurred to the affected environment since 2013.

30 **4.27.8.2 Environmental Effects**

31 **No Action Alternative**

32 The analysis of alternatives in the 2013 PEA concluded that implementation of the No Action
33 Alternative would result in less than significant impacts to biological resources. The analysis

1 noted that while growth at Joint Base Lewis-McChord under the Grow the Army initiative was
2 expected to result in significant impacts to biological resources, mitigation measures to reduce
3 the impacts had been employed. As a result, the 2013 PEA concluded that the No Action
4 Alternative would result in less than significant impacts to biological resources. These conditions
5 would continue to exist, so under the No Action Alternative of this SPEA less than significant
6 impacts to biological resources would continue to be expected.

7 **Alternative 1—Implement Force Reductions**

8 The 2013 PEA concluded that the implementation of Alternative 1 of that PEA would result in
9 beneficial impacts to biological resources due to decreased frequency of disturbances to the
10 affected environment caused by vehicle and foot traffic. Reduced frequency of training activities
11 would also allow greater recovery time between disturbances in the affected areas.
12 Implementation of Alternative 1 of this SPEA would also likely benefit biological resources on
13 Joint Base Lewis-McChord by reducing scheduling conflicts which will increase the ease of
14 conducting biological resource monitoring and proactive conservation activities. Beneficial
15 impacts to biological resources on Joint Base Lewis-McChord are expected to continue as a
16 result of the proposed further reduction of personnel.

17 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
18 natural resources regulations. Even if the full end-strength reductions were to be realized at Joint
19 Base Lewis-McChord, the Army would ensure that adequate staffing remains so that the
20 installation would comply with all mandatory environmental regulations.

21 **4.27.9 Wetlands**

22 **4.27.9.1 Affected Environment**

23 Wetlands are among the VECs excluded from detailed analysis in the 2013 PEA as described in
24 Section 4.12.1.2 due to lack of significant, adverse environmental impacts as a result of
25 implementing alternatives included in that analysis. No changes have occurred to the affected
26 environment since 2013.

27 **4.27.9.2 Environmental Effects**

28 **No Action Alternative**

29 Implementation of the No Action Alternative would result in negligible, adverse impacts to
30 wetlands and the affected environment would remain in its present state.

31 **Alternative 1—Implement Force Reductions**

32 Per Section 4.7.1.2 of the 2013 PEA, there would be negligible changes to wetlands under
33 Alternative 1. The installation places a 50 meter buffer around all wetlands and does not allow
34 off-road vehicles, bivouacking, digging, or assembling within the buffer. Impacts to wetlands

1 could conceivably occur if the further force reductions decreased environmental staffing levels to
2 a point where environmental compliance could not be properly implemented. The Army is
3 committed, however, to ensuring that personnel cuts will not result in non-compliance with
4 wetland regulations. Even if the full end-strength reductions were to be realized at Joint Base
5 Lewis-McChord, the Army would ensure that adequate staffing remains so that mandated
6 environmental requirements would continue to be met. Therefore, impacts under Alternative 1 at
7 Joint Base Lewis-McChord would remain the same as those discussed in Section 4.7.1.2 of the
8 2013 PEA.

9 **4.27.10 Water Resources**

10 **4.27.10.1 Affected Environment**

11 The affected environment for water resources on Joint Base Lewis-McChord remains the same
12 as that described in Section 4.12.7.1 of the 2013 PEA for surface water, water supply and
13 demand, and wastewater resources. However, there has been one change to the affected
14 environment for stormwater resources. An NPDES Permit for Stormwater Discharges, effective
15 October 2013, was issued to Joint Base Lewis-McChord authorizing stormwater discharge from
16 the MS4 outfalls on the installation (EPA, 2013b). This permit requires the development and
17 implementation of a stormwater management program and stormwater control BMPs and details
18 the discharges limits, monitoring, and assessment regulations and guidelines to be followed.

19 **4.27.10.2 Environmental Effects**

20 **No Action Alternative**

21 In the 2013 PEA, less than significant impacts to water resources were anticipated from the No
22 Action Alternative. Potential water quality violations from wastewater effluent discharged from
23 the existing WWTP on the installation was anticipated to result in significant but mitigable
24 impacts. However, construction of a planned WWTP will minimize these wastewater impacts.
25 Additional minor impacts were anticipated due to continuing water supply and demand, surface
26 water, and stormwater management as well as training related impacts to surface waters.
27 Adherence to permits, BMPs, and other management programs was anticipated to mitigate these
28 impacts. Surface water, wastewater, and stormwater impacts under the No Action Alternative
29 would remain the same as described in the 2013 PEA.

30 **Alternative 1—Implement Force Reductions**

31 Beneficial impacts to water resources were anticipated from implementation of force reductions
32 in the 2013 PEA because of reduced potable water supply demand and an increase in additional
33 wastewater treatment capacity for other uses. Reduction in training area use from force
34 reductions on the installation was also anticipated to potentially reduce impacts to surface waters
35 caused by disturbance, sedimentation, and runoff. Reduced use of training and other vehicles was
36 expected to lead to less frequent washings and provide more non-potable water for other uses.

1 Increased force reductions under Alternative 1 of this SPEA would continue to have the same
2 beneficial impacts surface waters, wastewater, and water consumption and treatment.

3 Adverse water resources impacts could conceivably occur if personnel cuts prevented
4 environmental compliance from being implemented. The Army is committed to ensuring that
5 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
6 end-strength reductions were to be realized at Joint Base Lewis-McChord, the Army would
7 ensure that adequate staffing remains so that mandated environmental requirements would
8 continue to be met and implemented.

9 **4.27.11 Facilities**

10 **4.27.11.1 Affected Environment**

11 The facilities affected environment of the Joint Base Lewis-McChord installation remains the
12 same as described in Section 4.12.8.1 of the 2013 PEA.

13 **4.27.11.2 Environmental Effects**

14 **No Action Alternative**

15 Under the No Action Alternative, the 2013 PEA concluded that there would be less than
16 significant impacts to facilities at Joint Base Lewis-McChord. For the current analysis, Lewis-
17 McChord Communities LLC (the privatized Family housing project) is completing the initial
18 development period of a 50-year development plan with an end state housing inventory of 4,994
19 units by December 2018. All currently planned new construction thru 2052 is replacement
20 construction to address aged and failing inventory.

21 **Alternative 1—Implement Force Reductions**

22 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
23 would occur at Joint Base Lewis-McChord. Under Alternative 1, implementation of the proposed
24 further force reductions would result in overall minor, adverse impacts. Impacts would occur
25 from the fact that future, programmed construction or expansion projects may not occur or could
26 be downscoped; moving occupants of older, underutilized, or excess facilities into newer
27 facilities may require modifications to existing facilities; and a greater number of buildings on
28 the installation may become vacant or underutilized due to reduced requirements for facilities,
29 which would have a negative impact on overall space utilization. Some beneficial impacts are
30 also expected as a result of force reductions such as reduced demands for utilities and reduced
31 demands for training facilities and support services. Training areas would also have fewer
32 scheduling conflicts from reduced training load. Remaining units with inadequate facilities could
33 occupy facilities that better support unit administrative requirements. Force reductions would
34 also provide the installation the opportunity to reduce reliance on relocatable facilities and some
35 older buildings not up to current standards. As discussed in Chapter 1, the demolition of existing

1 buildings or placing them in caretaker status as a result of the reduction in forces is not
 2 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
 3 these activities are not analyzed.

4 **4.27.12 Socioeconomics**

5 **4.27.12.1 Affected Environment**

6 Joint Base Lewis-McChord is located approximately 9 miles south-southwest of Tacoma,
 7 Washington. The ROI for Joint Base Lewis-McChord in this analysis includes those areas that
 8 are generally considered the geographic extent to which the majority of the installation’s
 9 Soldiers, Army civilians, contractor personnel, and their Families reside. The ROI includes
 10 Pierce and Thurston counties.

11 This section provides a summary of demographic and economic characteristics within the ROI.
 12 These indicators are described in greater detail in Section 4.12.9 of the 2013 PEA. However,
 13 some demographic and economic indicators have been updated where more current data
 14 are available.

15 **Population and Demographics**

16 Using 2011 as a baseline, Joint Base Lewis-McChord has a total working population of 50,438
 17 consisting of active component Soldiers and Army civilians, and other military services,
 18 civilians, and contractors. Of the total working population, 36,222 were Soldiers and Army
 19 civilians. The population that lives on Joint Base Lewis-McChord consists of 9,953 Soldiers and
 20 Army civilians and estimated 15,109 Family members, for a total on installation population of
 21 25,062 (Joint Base Lewis-McChord, 2014). Finally, the portion of the Soldiers, Army civilians,
 22 and Family members living off the installation in 2011 was estimated to be 66,145.

23 In 2012, the ROI had a population of 1,070,708, a 2.2 percent increase from 2010. Both counties
 24 within the ROI increased in population between 2010 and 2012 (Table 4.27-2). As shown in
 25 Table 4.27-3, the racial and ethnic composition of Pierce County is slightly more diverse than
 26 either Thurston County or the state of Washington as a whole (U.S. Census Bureau, 2012a).

27 **Table 4.27-2. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012(percent)
Pierce County, Washington	812,055	+2.1
Thurston County, Washington	258,653	+2.5

1 **Table 4.27-3. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic or Latino (percent)	White Alone, not Hispanic or Latino (percent)
State of Washington	81.6	3.9	1.8	7.7	4.3	11.7	71.6
Pierce County, Washington	76.8	7.2	1.6	6.3	6.6	9.6	69.5
Thurston County, Washington	83.9	3.1	1.6	5.4	5.1	7.7	77.8

2 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

3 **Employment and Income**

4 Information presented below represents an update from the 2013 PEA, which provided
 5 employment and income information from 2009. Between 2000 and 2012, total employment in
 6 Thurston County grew at a faster rate than Pierce County and the state of Washington as a whole
 7 (Table 4.27-4) (U.S. Census Bureau, 2000 and 2012b).

8 Counties within the ROI had median home values that were similar to the state as a whole. The
 9 median household income in Thurston County was greater than median household income in
 10 both Pierce County and the state of Washington. The poverty rate in both Pierce and Thurston
 11 counties was lower than the Washington average (Table 4.27-4) (U.S. Census Bureau, 2012b).

12 **Table 4.27-4. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment Change 2000–2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Washington	3,202,700	+12.7	272,900	59,374	12.9
Pierce County, Washington	372,536	+12.5	251,400	59,105	11.9
Thurston County, Washington	120,866	+18.0	251,000	63,224	11.1

13 Information regarding the workforce by industry for each county within the ROI was obtained
 14 from the U.S. Census Bureau (U.S. Census Bureau, 2012b). Information presented below is for
 15 the employed labor force.

Pierce County, Washington

The educational services, and health care and social assistance sector accounts for the greatest share of the total workforce in Pierce County (21 percent). Retail trade is the second largest employment sector (11 percent), followed by manufacturing (9 percent); professional, scientific, and management, and administrative and waste management services (9 percent); and arts, entertainment, and recreation, and accommodation and food services sectors (9 percent). The Armed Forces account for 5 percent of the Pierce County workforce. The eight remaining sectors account for 36 percent of the workforce.

Thurston County, Washington

Similar to Pierce County, the educational services, and health care and social assistance sector accounts for the greatest share of Thurston County's total workforce (21 percent). Public administration is the second largest employment sector (18 percent), followed by retail trade (11 percent). The Armed Forces account for 3 percent of the Thurston County workforce. The 10 remaining sectors employ 47 percent of the workforce.

Housing

Joint Base Lewis-McChord has approximately 5,000 Family housing units in 22 neighborhoods on the installation. Since 2002, Lewis-McChord Communities LLC has renovated more than 3,000 homes and constructed more than 1,000 new homes on the installation (Lewis-McChord Communities, 2014). Joint Base Lewis-McChord has approximately 12,000 barracks and dormitory spaces for unaccompanied personnel. Additional housing information is provided in the 2013 PEA.

Schools

Military-connected students attend schools throughout the ROI. The Clover Park School District operates the 5 elementary schools on the joint base and an additional 20 schools (elementary, middle, and high) in the city of Lakewood, which is adjacent to the joint base. Joint Base Lewis-McChord and the DoD's Office of Economic Adjustment are in the process of replacing the five elementary schools on the installation.

As described in the 2013 PEA, during the 2008-2009 academic year, approximately 36.0 percent of the district's total enrollment was attributable to military-connected students. In addition, military-connected students represent a notable share of total enrollment in the Steilacoom Historical and Yelm schools districts, 17.0 percent and 7.0 percent, respectively.

Enrollment in regional schools has increased in recent years to such an extent that numerous school districts within the ROI are operating at or over capacity. Additional information on schools is provided in the 2013 PEA.

1 **Public Health and Safety**

2 The Joint Base Lewis-McChord Police and Fire department fall under the auspices of DES.
3 Police protection services to areas within the ROI but city, county, and state police departments
4 provide services to the ROI off the joint base. Because of the joint base's location near I-5, its
5 fire department is often called upon to provide first responder assistance for accidents on
6 the interstate.

7 A variety of medical services are provided both on the joint base and in the larger ROI. The
8 Madigan Healthcare System, a network of Army medical facilities located throughout
9 Washington, Oregon, and California, is headquartered at the Madigan Army Medical Center on
10 the installation. The medical center is the Army's second largest Military Treatment Facility,
11 which includes a Level II Trauma Center and 240 inpatient beds. Non-military people are also
12 treated at the center, as needed. Additional public health and safety information is provided in
13 the 2013 PEA.

14 **Family Support Services**

15 The Joint Base Lewis-McChord FMWR and ACS, a human service organization, provides
16 services and programs designed to assist Soldiers and their Families. Services include but are not
17 limited to child care and youth programs to deployment, employment, financial, and relocation
18 readiness. Additional information about Family Support Services is provided in the 2013 PEA.

19 **Recreation Facilities**

20 Joint Base Lewis-McChord offers a variety of recreation and leisure programs to military
21 personnel, civilians, and their Families. Facilities include but are not limited to a golf course,
22 bowling center, fitness centers, and outdoor recreation opportunities. Additional information
23 about recreation facilities is provided in the 2013 PEA.

24 **4.27.12.2 Environmental Effects**

25 **No Action Alternative**

26 The operations at Joint Base Lewis-McChord would continue to provide beneficial effects on
27 regional economic activity. Presently, an initiative to build two new elementary schools on the
28 joint base is underway, which should help to mitigate school crowding within the ROI. These
29 new schools would have approximately double the capacity of existing on-base schools. Several
30 school districts in the ROI outside Joint Base Lewis-McChord are coping with the influx of the
31 additional school-aged children as a result of the Grow the Army initiative. No additional
32 impacts to housing, public and social services, public safety, recreation facilities, or
33 environmental justice are anticipated.

1 Alternative 1—Implement Force Reductions

2 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
 3 significant impact to socioeconomic resources. The description of impacts to the various
 4 components of socioeconomics is presented below.

5 Population and Economic Impacts

6 Alternative 1 would result in the loss of up to 16,000³³ Army positions (14,459 Soldiers and
 7 1,541 Army civilians), with an average annual income of \$46,760 and \$57,361, respectively. In
 8 addition, this alternative would affect an estimated 24,288 Family members, including 8,928
 9 spouses and 15,360 children. The total population of Army employees and their Family members
 10 who may be directly affected by Alternative 1 is projected to be 40,288.

11 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
 12 forecast value falls outside the historical positive and negative range. Table 4.27-5 shows the
 13 deviation from the historical average that would represent a significant change for each
 14 parameter. The last row summarizes the deviation from the historical average for the estimated
 15 demographic and economic impacts under Alternative 1 (forecast value) as estimated by the
 16 EIFS model. The last row summarizes the estimated economic impacts of Alternative 1 to the
 17 region as estimated by the EIFS model. Based on the EIFS analysis, there would not be
 18 significant impacts to sales, income, or employment because the estimated percentage change is
 19 within the historical range. However, there would be significant population impacts because the
 20 estimated percentage change is outside the historical range.

21 Table 4.27-5. Economic Impact Forecast System and Rational Threshold Value
22 Summary

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+6.1	+4.0	+2.8	+1.9
Economic contraction significance value	-7.3	-4.5	-7.1	-2.6
Forecast Value	-2.4	-2.2	-5.1	-3.6

23 Table 4.27-6 summarizes the predicted impacts to income, employment, and population of force
 24 reductions against 2012 demographic and economic data. Whereas the forecast value provides a
 25 percent change from the historical average, the percentages in the following table show the
 26 economic impact as a percent of 2012 demographic and economic data. Although not in exact

³³ This number was derived by assuming the loss of two BCTs, 60 percent of Joint Base Lewis-McChord’s non-BCT Soldiers, and 30 percent of the Army civilians to arrive at 16,000. The 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000.

1 agreement with the EIFS forecasted values, these figures show the same significance
 2 determinations as the EIFS predictions in the previous table.

3 **Table 4.27-6. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impact	-\$971,551,600	-17,757 (Direct)	-40,288
		-3,587 (Induced)	
		-21,344 (Total)	
Total 2012 ROI economic estimates	\$46,593,600,000	493,402	1,070,708
Percent reduction of 2012 figures	-2.1	-4.3	-3.8

4 Note: Sales estimates are not consistently available from public sources for all counties in the United
 5 States; therefore, the sales data for counties are not presented in this table. The estimated
 6 reduction in total sales from the EIFS is described in the paragraphs below.

7 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 8 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 9 cumulative force reductions. Because of the loss of 16,000 Soldiers and Army civilians under
 10 Alternative 1, EIFS estimates an additional 1,757 direct contract service jobs would also be lost.
 11 An additional 3,587 induced jobs would be lost due to the reduction in demand for goods and
 12 services within the ROI. Total reduction in employment is estimated to be 21,344, a reduction of
 13 4.3 percent from the total employed labor force in the ROI of 493,402. The reduced workforce
 14 could affect unemployment rates, which in 2012, were 10.3 percent and 8.6 percent in Pierce and
 15 Thurston counties, respectively (U.S. Census Bureau, 2012b). Income is estimated to fall by
 16 \$971.55 million, a 2.1 percent decrease in income from 2012.

17 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$1.2 billion.
 18 There would also be a loss in sales tax receipts to local and state governments. The state and
 19 average local sales tax for Washington is 8.88 percent (Tax Foundation, 2014). To estimate sales
 20 tax reductions, information on the proportion of sales that would be subject to sales taxes on
 21 average across the country was utilized. According to the U.S. Economic Census, an estimated
 22 16 percent of economic output or sales would be subject to sales tax (U.S. Economic Census,
 23 2012). The percentage and applicable tax rate was applied to the estimated decrease in sales of
 24 \$1.2 billion resulting in an estimated sales tax receipts decrease of \$17.4 million under
 25 Alternative 1.

26 Of the approximately 1.1 million people (including those residing on Joint Base Lewis-
 27 McChord) who live within the ROI, 16,000 military employees and their estimated 24,288
 28 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a
 29 significant population reduction of 3.8 percent. This number likely overstates potential
 30 population impacts because some of the people no longer employed by the Army would continue
 31 to live and work within the ROI, finding employment in other industry sectors.

1 **Housing**

2 The population reduction that would result under Alternative 1 would decrease housing demand
3 and increase housing availability on Joint Base Lewis-McChord and across the larger ROI.
4 Increased vacancy across the region may result in a slight decrease in median home values.
5 These effects would likely be experienced to the greatest extent in the cities of Olympia, Lacey,
6 Yelp, DuPont, Lakewood, Puyallup, and Tacoma, and potentially recognized to a lesser extent
7 in some smaller municipalities within the ROI. However, the ROI is currently experiencing
8 population growth and housing values are likely to be driven by numerous contributing factors.
9 Overall, because the Joint Base Lewis-McChord population is distributed in a number of
10 municipalities across the ROI, the installation reduction that would occur under Alternative 1 has
11 the potential to result in minor, less than significant impacts to the housing market.

12 **Schools**

13 As reported in the 2013 PEA, regional schools have experienced adverse effects from crowding
14 and large class sizes, particularly those in the Clover Park and Steilacoom Historical School
15 Districts. Under Alternative 1, the potential reduction of 16,000 Soldiers and Army civilians
16 would decrease the number of children within the ROI by approximately 15,360. Therefore,
17 under Alternative 1, it is anticipated that the reduction of school-aged children would decrease
18 enrollment in some schools where crowding and large class sizes have been an issue, resulting in
19 beneficial impact. Alternative 1 is not anticipated to change plans to replace the five elementary
20 schools on the joint base.

21 Under Alternative 1, enrollment would decrease across individual school districts within the
22 ROI, particularly the Clover Park and Steilacoom Historical School Districts. School districts
23 within the ROI receive Federal Impact Aid funds, the allocation of which is based on the number
24 of military-connected students they support. The actual projected loss of Federal Impact Aid
25 funds cannot be determined at this time due to the variability of appropriated dollars from year to
26 year and the uncertainty regarding the specific impacts to ROI school enrollment. It is
27 anticipated that schools across the ROI, particularly in the Clover Park and Steilacoom Historical
28 School Districts, would likely need fewer teachers and materials as enrollment declines, which
29 would partially offset the reduction in Federal Impact Aid. However, the reduction in Federal
30 Impact Aid funds would make it more difficult for some school districts to retain teachers and
31 other staff necessary to effectively run schools within affected districts. Overall, the
32 implementation of Alternative 1 would result in adverse impacts to schools due to reduction of
33 Federal Impact Aid funds associated with the enrollment of military-connected students, ranging
34 from minor to significant depending on the reduction in the number of military-connected
35 students attending specific schools.

1 **Public Services**

2 A reduction in personnel would have minor impacts to emergency services, fire, police, and
3 medical services because the reduction is anticipated to decrease the need for these services.
4 Adverse impacts to public services could conceivably occur if personnel cuts were to
5 substantially affect hospitals, military police, and fire and rescue crews on the joint base. These
6 scenarios are not reasonably foreseeable, however, and therefore are not analyzed. Regardless of
7 any drawdown in military or civilian personnel, the Army is committed to meeting health and
8 safety requirements. These impacts are not expected to be significant because the existing service
9 level for the joint base and the ROI would still be available.

10 **Family Support Services and Recreation Facilities**

11 Under Alternative 1, Joint Base Lewis-McChord would experience a significant population
12 reduction. Family Support Services and recreation facilities on the installation would experience
13 a minor decrease in demand if Soldiers, Army civilians, and their Family members affected
14 under Alternative 1 move to areas outside the ROI. These services and facilities would
15 experience reduced demand and use and subsequently, would require fewer personnel and/or
16 reduced funding; however, the Army is committed to meeting the needs of the remaining
17 population on the installation.

18 **Environmental Justice and Protection of Children**

19 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
20 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
21 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
22 and adverse human health or environmental effects of its programs, policies, and activities on
23 minority and low-income populations” (EPA, 1994). As shown in Table 4.27-3, the proportion of
24 minority populations is slightly higher in Pierce County than in Thurston County or Washington
25 as a whole. Under Alternative 1, adverse economic impacts would result across the ROI. The
26 extent to which these impacts are recognized by individual businesses, both minority and non-
27 minority owned, would depend on the consumer base in which they serve. Overall, adverse
28 impacts to minority-owned and/or -staffed businesses as well as non-minority-owned and/or -
29 staffed businesses could potentially occur in Pierce County. However, these impacts are not
30 expected to be disproportionate because they would be experienced across all populations.

31 Populations living below the poverty level in both Pierce and Thurston counties are lower than in
32 Washington overall. Therefore, Alternative 1 would not cause disproportionate adverse impacts
33 to populations living below the poverty level.

34 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
35 federal agencies are required to identify and assess environmental health and safety risks that
36 may disproportionately affect children and to ensure that the activities they undertake do not
37 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions

1 were to be realized, the Army is committed to implementing required environmental compliance
2 and meeting the health and safety needs of people associated with the installation, including
3 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
4 environmental health and safety risks to children within the ROI. Additionally, this analysis
5 evaluates the effects associated with workforce reductions only, and any subsequent actions on
6 the installation that may require ground-disturbing activities that have the potential to result in
7 environmental health and safety risks to children, such as demolishing vacant buildings, is
8 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
9 as appropriate.

10 **4.27.13 Energy Demand and Generation**

11 **4.27.13.1 Affected Environment**

12 Energy demand and generation is among the VECs excluded from detailed analysis in the 2013
13 PEA as described in Section 4.12.1.2 due to lack of significant, adverse environmental impacts
14 resulting from the implementation of alternatives included in this analysis. No changes have
15 occurred to the affected environment since 2013.

16 **4.27.13.2 Environmental Effects**

17 **No Action Alternative**

18 Under the No Action Alternative, the 2013 PEA concluded that there would be negligible
19 impacts to energy demand and generation at Joint Base Lewis-McChord. For the current
20 analysis, Joint Base Lewis-McChord would continue to draw similar amounts of energy from its
21 utility provider with the same requirements for energy and maintenance of infrastructure so
22 impacts to facilities would remain the same as described in the 2013 PEA.

23 **Alternative 1—Implement Force Reductions**

24 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to energy
25 demand and generation would occur on Joint Base Lewis-McChord. Under Alternative 1, minor,
26 beneficial impacts to energy are anticipated due to a further reduction in energy consumption
27 associated with the additional force reductions. The installation would also be better positioned
28 to meet energy and sustainability goals.

29 **4.27.14 Land Use Conflicts and Compatibility**

30 **4.27.14.1 Affected Environment**

31 The land use affected environment of Joint Base Lewis-McChord remains effectively the same
32 as described in Section 4.12.10.1 of the 2013 PEA.

1 **4.27.14.2 Environmental Effects**

2 **No Action Alternative**

3 The 2013 PEA concluded that no changes to land use would occur and impacts would be minor.
4 Under the No Action Alternative, minor impacts to land use would continue to occur.

5 **Alternative 1—Implement Force Reductions**

6 The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in
7 a beneficial impact to land use. A reduction in troops would eliminate a need for additional
8 Family housing and allow Joint Base Lewis-McChord to selectively demolish outdated buildings
9 and clear land for best use. Under Alternative 1, beneficial impacts would be similar to those
10 described in the 2013 PEA.

11 The Army is also committed to ensuring that personnel cuts will not result in non-compliance
12 with land use ordinances and regulations. Even if the full end-strength reductions were to be
13 realized at Joint Base Lewis-McChord, the Army would ensure that adequate staffing remains so
14 that the installation would comply with all mandatory environmental regulations including land
15 use ordinances and regulations.

16 **4.27.15 Hazardous Materials and Hazardous Waste**

17 **4.27.15.1 Affected Environment**

18 As described in the 2013 PEA (Section 4.12.11.1), hazardous materials are used and hazardous
19 waste generated on Joint Base Lewis-McChord. This includes hazardous materials and waste
20 from USTs and ASTs, pesticides, LBP, asbestos-containing materials, PCBs, radon, and UXO.
21 Units and activities on Joint Base Lewis-McChord typically use hazardous materials such as
22 fuels, paints, solvents, lubricants, coolants, and sanitation chemicals. Hazardous waste is
23 generated as a result of facility and equipment maintenance, medical care activities, and Soldier
24 training. Joint Base Lewis-McChord operates as a large quantity hazardous waste generator
25 under RCRA and has several plans in place to help manage hazardous materials and waste,
26 including a Pollution Prevention Plan, ISC Plan, SPCC Plan, and Pest Management Plan. No
27 substantial changes have occurred to the affected environment since 2013.

28 **4.27.15.2 Environmental Effects**

29 **No Action Alternative**

30 As stated in the 2013 PEA, minor, adverse impacts are anticipated under the No Action
31 Alternative. Use of hazardous materials and generation of hazardous wastes would continue on
32 Joint Base Lewis-McChord in accordance with all applicable laws, regulations and plans. Joint
33 Base Lewis-McChord would continue to manage hazardous materials and hazardous waste in
34 accordance with the HWMP.

1 **Alternative 1—Implement Force Reductions**

2 The analysis of Alternative 1 in the 2013 PEA concluded that less than significant impacts from
3 hazardous materials and hazardous waste would occur on Joint Base Lewis-McChord.

4 Alternative 1 in this SPEA is not expected to involve major changes to the installation operations
5 or types of activities conducted on the installation and therefore impacts would remain less than
6 significant. Because of the reduced numbers of people, it is likely that the potential for spills
7 would be reduced further during training and maintenance activities. The volume of waste
8 generated and material requiring storage would increase slightly because deactivating units
9 would turn in hazardous material for storage to avoid transportation risks.

10 Under Alternative 1, adverse impacts could conceivably occur if personnel cuts prevented
11 environmental compliance from being implemented. The Army is committed, however, to
12 ensuring that personnel cuts will not result in non-compliance with regulations governing the
13 handling, management, disposal, and clean up, as appropriate, of hazardous materials and
14 hazardous waste. Even if the full end-strength reductions were to be realized at Joint Base Lewis-
15 McChord, the Army would ensure that adequate staffing remains so that the installation would
16 comply with all mandatory environmental regulations.

17 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
18 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
19 therefore, potential impacts from these activities are not analyzed.

20 **4.27.16 Traffic and Transportation**

21 **4.27.16.1 Affected Environment**

22 The transportation affected environment of the Joint Base Lewis-McChord ROI remains the
23 same as described in Section 4.12.12.1 of the 2013 PEA, including the fact that along with non-
24 military related growth in the ROI over the last decade, Joint Base Lewis-McChord traffic
25 (military and civilian) negatively affects traffic flow on I-5 and LOS ratings at numerous
26 intersections both on and off the installation.

27 **4.27.16.2 Environmental Effects**

28 **No Action Alternative**

29 Under the No Action Alternative, the 2013 PEA anticipated significant, adverse impacts to
30 traffic and transportation along the I-5 corridor. The Grow the Army proposal determined that
31 there would be significant impacts to traffic flows and increased delays at key intersections on
32 and near the installation. Since the affected environment has not changed since 2013, these
33 significant, adverse impacts would continue.

1 **Alternative 1—Implement Force Reductions**

2 The 2013 PEA concluded that the force reductions at Joint Base Lewis-McChord would result in
3 beneficial impacts to traffic and transportation systems. With the departure of Soldiers, Army
4 civilians and their Family members, the Army anticipates a decrease in traffic congestion and
5 improvements in LOS on the installation and neighboring communities, particularly during peak
6 periods. Under Alternative 1, these same beneficial impacts would occur, however, with the
7 proposed further reductions in force, the size of this beneficial impact under Alternative 1 would
8 be larger than anticipated at the time of the 2013 PEA.

9 **4.27.17 Cumulative Effects**

10 As noted in the 2013 PEA, the ROI for the cumulative impacts analysis of Army 2020
11 realignment at Joint Base Lewis-McChord encompasses Pierce and Thurston counties in
12 Washington. Section 4.12.13 of the 2013 PEA noted numerous planned or proposed actions
13 within the ROI that reasonably could be initiated within the next 5 years. A number of the
14 Army's proposed projects have been previously identified in the installation's Real Property
15 Master Planning Board and are programmed for future execution.

16 **Reasonably Foreseeable Future Projects on Joint Base Lewis-McChord**

17 No additional actions have been identified by the installation beyond those noted in the
18 cumulative effects analysis of the 2013 PEA.

19 **Reasonably Foreseeable Future Projects outside Joint Base Lewis-McChord**

20 Beyond those mentioned in the 2013 PEA, the Army is not aware of any reasonably foreseeable
21 future projects outside Joint Base Lewis-McChord which would be appropriate for inclusion in
22 the cumulative impacts analysis. However, there are other projects and actions that affect
23 regional economic conditions and generally include construction and development activities,
24 infrastructure improvements, and business and government projects and activities. Additionally,
25 larger economies with more job opportunities could absorb some of the displaced Army
26 workforce, lessening adverse effects of force reductions.

27 **No Action Alternative**

28 There would be no cumulative effects of the foreseeable future actions with the No Action
29 Alternative. Current socioeconomic conditions would persist within the ROI, and the No Action
30 Alternative would not contribute to any changes.

31 **Alternative 1—Implement Force Reductions**

32 As determined in the 2013 PEA, cumulative impacts as a result of the implementation of force
33 reduction range from beneficial to minor, adverse impacts. The following VEC areas are
34 anticipated to experience either no impact or beneficial impact as a result of the implementation
35 of the previous proposed action: biological resources, water resources, energy demand and

1 generation, and land use conflict and compatibility. Minor impacts are expected on cultural
2 resources and facilities. The additional force reductions with Alternative 1 of the SPEA would
3 not result in any changes from that determination.

4 The socioeconomic impact within the ROI, as described in Section 4.27.12 with a reduction of
5 16,000 Soldiers and Army civilians, would result in a significant reduction in population, with
6 minor, adverse effects on the regional economy, schools, and housing. Joint Base Lewis-
7 McChord is located between the cities of Olympia and Tacoma in Washington with an ROI
8 population of over 1.1 million. Because of the large employment base and diverse economy in
9 the region, the ROI would be less vulnerable to these force reductions because other industries
10 and considerable economic activity occurs within the ROI.

11 Other construction and development activities on the installation and in the ROI would benefit
12 the regional economy through additional economic activity, jobs, and income in the ROI. Other
13 services on the installation have not finalized military end-strength reduction plans, but these
14 additional reductions are anticipated to add to adverse impacts to socioeconomic conditions.
15 Under Alternative 1, the loss of 16,000 Soldiers and Army civilians, in conjunction with other
16 reasonably foreseeable actions, would have a minor, adverse impact on population, employment,
17 income, housing, and schools in the ROI.

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1 **4.28 Joint Base San Antonio-Fort Sam Houston, Texas**

2 **4.28.1 Introduction**

3 Joint Base San Antonio-Fort Sam Houston includes both Fort Sam Houston and Camp Bullis, as
4 well as several other sites mainly populated by the Air Force.³⁴ Fort Sam Houston is located in
5 the city of San Antonio, Texas (Figure 4.28-1). Loop 410 circles the city center and encloses a
6 densely populated urban environment. Fort Sam Houston is located within Loop 410 to the
7 northeast of the city center. The 2,940-acre installation is surrounded by developed property,
8 widely used highways and arterial roadways. Fort Sam Houston is bordered on the east by
9 Salado Creek. There is no room for land expansion, and additional development is confined
10 within the installation's borders.

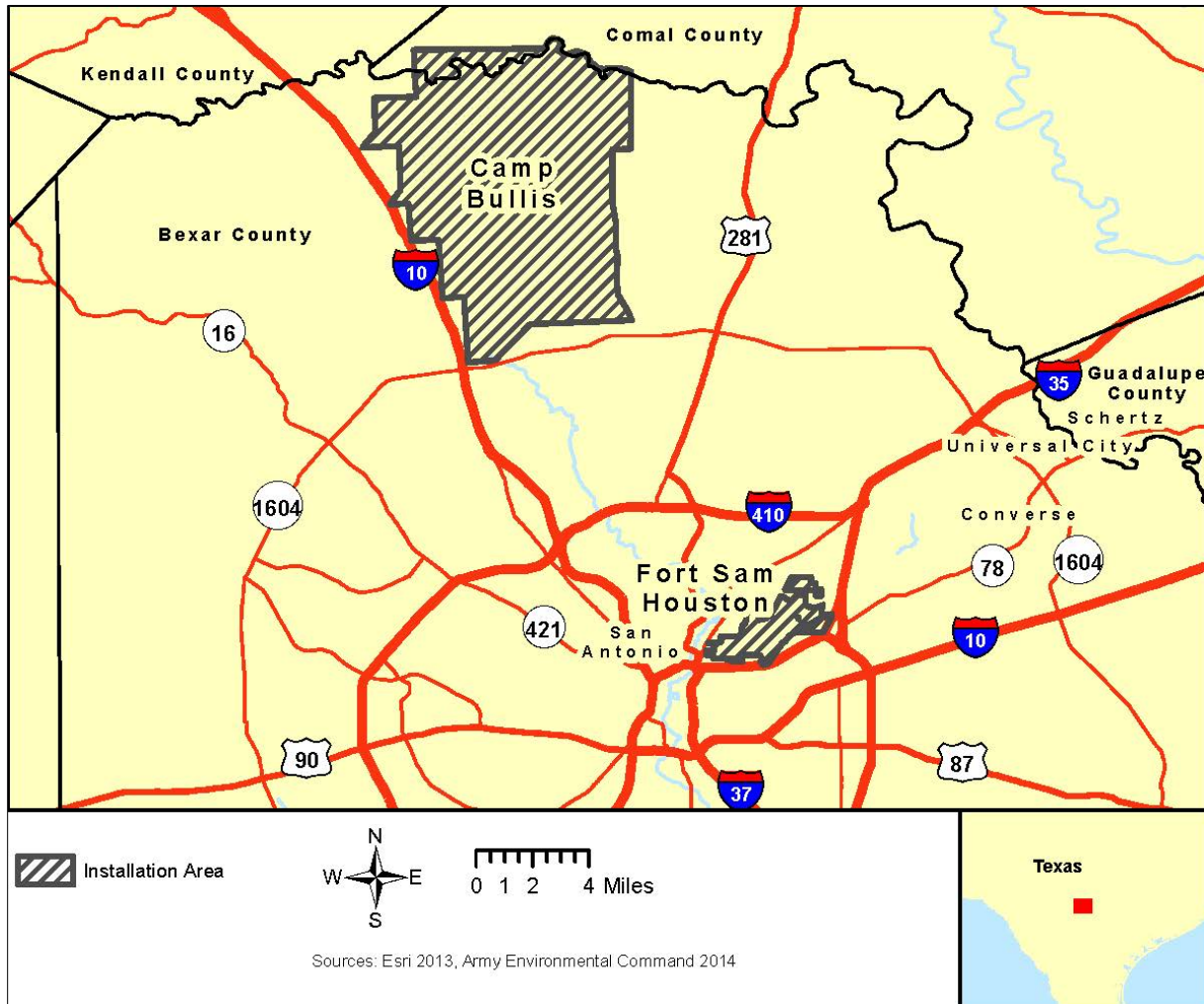
11 Fort Sam Houston was established in 1845 and has performed important roles for the Army
12 serving as a headquarters, logistical base, mobilization and training site, garrison, and medical
13 provider. After construction of the Quadrangle in 1876, the Army began to move facilities to the
14 current site of Fort Sam Houston. Fort Sam Houston is one of the oldest installations and has
15 more than 800 historic buildings in various historic zones. Camp Bullis, which serves as a
16 training site for troops stationed at Fort Sam Houston, was established in 1917 approximately 18
17 miles northwest of Fort Sam Houston. During World War II, the camp was an important venue
18 for training troops stationed at Fort Sam Houston.

19 After World War II, Fort Sam Houston was designated as the principal Army medical training
20 facility and Brooke General Hospital was developed into a premier Army medical center. The
21 installation's prominence in medical training and research advancement has led to significant
22 tactical and organizational innovations. Medical treatment of casualties evacuated by air was
23 performed at Fort Sam Houston as early as 1917.

24 Potential impacts resulting from any reductions in staffing levels other than Army staff at this
25 Air Force managed joint base could be analyzed in separate, future NEPA analyses, as
26 appropriate, although these reductions would not be related to the Army 2020 reductions
27 analyzed herein.

28 Joint Base San Antonio-Fort Sam Houston's 2013 baseline permanent party population was
29 12,256. In this SPEA, Alternative 1 assesses a potential population loss of 5,900, including
30 approximately 3,949 permanent party Soldiers and 1,985 Army civilians.

³⁴ In this document, Joint Base San Antonio-Fort Sam Houston refers to the combined Fort Sam Houston and Camp Bullis installations. Each installation is identified as either Fort Sam Houston or Camp Bullis where the information applies only to that installation.



1
2 **Figure 4.28-1. Joint Base San Antonio-Fort Sam Houston, Texas**

3 **4.28.2 Valued Environmental Components**

4 For alternatives the Army is considering as part of its 2020 force structure realignment, no
5 significant, adverse environmental or socioeconomic impacts are anticipated for Joint Base San
6 Antonio-Fort Sam Houston. Table 4.28-1 summarizes the anticipated impacts to VECs under
7 each alternative.

1 **Table 4.28-1. Joint Base San Antonio-Fort Sam Houston Valued Environmental**
 2 **Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Minor	Beneficial
Airspace	No Impacts	Negligible
Cultural Resources	Minor	Minor
Noise	Negligible	Beneficial
Soils	Minor	Beneficial
Biological Resources	No Impacts	Beneficial
Wetlands	Minor	Beneficial
Water Resources	Minor	Beneficial
Facilities	No Impacts	Minor
Socioeconomics	Beneficial	Less than Significant
Energy Demand and Generation	Minor	Beneficial
Land Use Conflict and Compatibility	No Impacts	No Impacts
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	Negligible	Beneficial

3 **4.28.3 Air Quality**

4 **4.28.3.1 Affected Environment**

5 Joint Base San Antonio-Fort Sam Houston is located in an area in attainment for criteria
 6 pollutants (EPA, 2013). There are various sources on the installation that emit criteria and
 7 hazardous air pollutants, including emergency generators, boilers, hot water heaters, fuel storage
 8 tanks, gasoline service stations, surface coating, and miscellaneous chemical usage (Fort Sam
 9 Houston, 2009).

10 **4.28.3.2 Environmental Effects**

11 **No Action Alternative**

12 Continuation of existing levels of emissions under the No Action Alternative would result in
 13 minor, adverse impacts to air quality. Emissions would remain at levels well below the
 14 maximum allowed under existing permits.

15 **Alternative 1—Implement Force Reductions**

16 Force reductions at Joint Base San Antonio-Fort Sam Houston under Alternative 1 would result
 17 in minor, long-term, beneficial air quality impacts because of reduced demand for heating/hot
 18 water and reduced operation of mobile sources to and from the facility.

1 The relocation of personnel outside of the area relocation of personnel outside of the area
2 because of force reductions could result in negligible, short-term effects on air quality associated
3 with mobile sources. As discussed in Chapter 1, the demolition of existing buildings or placing
4 them in caretaker status as a result of the force reductions is not reasonably foreseeable and not
5 part of the scope of this SPEA; therefore, potential impacts to air quality from these activities are
6 not analyzed.

7 The Army is committed to ensuring that personnel cuts will not result in Army non-compliance
8 with air quality regulations. However, management at Joint Base San Antonio-Fort Sam Houston
9 is under the authority of the Air Force, so measures to maintain compliance regarding overall air
10 quality regulations would continue to be met by the Air Force.

11 **4.28.4 Airspace**

12 **4.28.4.1 Affected Environment**

13 Joint Base San Antonio-Fort Sam Houston is not an Army aviation facility, and it does not
14 include range facilities for launching or firing weapons that would restrict airspace use.
15 Nevertheless, San Antonio Military Medical Center (SAMMC) has a heliport that supports
16 medical evacuation flights and occasional transport within the San Antonio area. The heliport is
17 located on the southeast perimeter of the SAMMC campus, previously known as the Brooke
18 Army Medical Center (BAMC) campus.

19 Airspace use in San Antonio is controlled by FAA and the Joint Base San Antonio-Fort Sam
20 Houston area is regulated as Class C airspace ranging from 2,000 feet to 4,800 feet msl and Class
21 D airspace in portions to 3,100 feet msl. There are major flight activities north, east, south and
22 southeast of Joint Base San Antonio-Fort Sam Houston from San Antonio International Airport,
23 Stinson Field, Joint Base San Antonio-Randolph and the Kelly Field Annex to Joint Base San
24 Antonio-Lackland. The aviation activity associated with Joint Base San Antonio-Fort Sam
25 Houston is helicopter operations for local area medical evacuation and transport. Takeoffs and
26 approaches generally follow the major adjacent roadways, more specifically IH-35. The
27 centerline of Runway 30L on approach/12R on departure for San Antonio International Airport
28 is close to the SAMMC site. Turns to and from centerline are approximately 4,000 feet north of
29 the SAMMC site (U.S. Army, 1988–89).

30 Camp Bullis has an airport located near its northern boundary in MA 2. No aircraft are based
31 there; instead, it is a training area used occasionally by C-130/C-17 aircraft to practice combat
32 assault operations, during which aircraft land under simulated tactical conditions and on-load or
33 off-load troops, supplies or mock casualties. A Camp Bullis heliport is located in the cantonment
34 area of the installation. The heliport lies in uncontrolled airspace. The cantonment area is
35 approximately 6 miles northwest of the threshold of Runway 12R at San Antonio International

1 Airport. Medical combat routes also are used by helicopters at Camp Bullis in support of medical
2 training to evacuate casualties under simulated combat conditions.

3 **4.28.4.2 Environmental Effects**

4 **No Action Alternative**

5 Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are
6 sufficient to meet current airspace requirements. A reduction in force would not alter the current
7 airspace use and would not be projected to require additional airspace restrictions. In addition,
8 because the Army does not conduct air operations or training at Joint Base San Antonio-Fort
9 Sam Houston, no impacts to airspace would occur.

10 **Alternative 1—Implement Force Reductions**

11 Airspace restrictions and classifications around Joint Base San Antonio-Fort Sam Houston are
12 sufficient to meet current airspace requirements and the implementation of Alternative 1 would
13 not result in a decreased requirement for airspace but could result in a slightly lower use of and
14 requirements for airspace use. The potential decrease in airspace use would result in negligible
15 impacts to airspace at Joint Base San Antonio-Fort Sam Houston.

16 **4.28.5 Cultural Resources**

17 **4.28.5.1 Affected Environment**

18 The affected environment for cultural resources at Joint Base San Antonio-Fort Sam Houston is
19 the installation footprint. Surveys of the installation have identified 12 archaeological sites, none
20 of which are eligible for listing in the NRHP (Clow et al., 2008).

21 The built environment is an important component of the installation; as the installation grew and
22 changed over time, care was taken to create an aesthetic environment that was both functional
23 and livable (Clow et al., 2008). The installation has completed architectural surveys of all
24 resources over 50 years of age as well as Cold War Era resources. These surveys have identified
25 723 historic architectural resources, all of which are considered eligible for listing in the NRHP.
26 Of these, 257 are included in the Fort Sam Houston NHL District. Buildings associated with this
27 NHL District date from the establishment of the installation in 1875 through 1924.

28 In addition, the New Post area of the installation is eligible for listing as a district in the NRHP
29 and could be included within the NHL District in the future. The area is currently designated a
30 Conservation District. There is one building within the New Post area, the former BAMC (old
31 BAMC, Building 1000), that is individually listed in the NRHP. Four other architectural
32 resources are individually listed in the NRHP: the Quadrangle (Building 16); Clock Tower
33 (Building 40); Pershing House (Building 6); and the Gift Chapel (Building 2200).

1 Four federally recognized tribes and one non-federally recognized tribe are culturally affiliated
2 with resources managed by Joint Base San Antonio-Fort Sam Houston (Clow et al., 2008).
3 Consultation requirements for NHPA, Section 106 have been satisfied through the development
4 of the alternative procedures described below (Clow et al., 2008). However, comments are
5 sometimes requested from the tribes during the NEPA process or when cultural resource laws are
6 involved such as Archaeological Resources Protection Act or Native American Graves
7 Protection and Repatriation Act. Three of the federally recognized tribes have signed standard
8 operating procedures with Joint Base San Antonio-Fort Sam Houston; these are included in the
9 ICRMP. Currently, no TCPs or sacred areas have been identified within the installation.

10 Joint Base San Antonio-Fort Sam Houston has developed alternative procedures for compliance
11 with Section 106 of the NHPA. These procedures were developed and agreed upon by the Army
12 and ACHP in 2001 and revised in 2004, before joint basing. These procedures allow for cultural
13 resources management without outside involvement (ACHP/SHPO/others) in case-by-case
14 review (Clow et al., 2008). These procedures do not replace consultation required under other
15 cultural resource management-related laws such as the Native American Graves Protection and
16 Repatriation Act. In addition to the alternative procedures, the installation has implemented two
17 programmatic agreements for cultural resources compliance. The first implements the alternative
18 procedures. The second, titled *Programmatic Agreement for the Privatization of Family Housing*
19 *at Fort Sam Houston, Texas*, provides for the consideration and treatment of resources that may
20 be affected by the RCI program (Clow et al., 2008). The Fort Sam Houston Military Reservation
21 ICRMP and EA, completed in 2008, detail the procedures for management of cultural resources
22 in accordance with applicable laws.

23 **4.28.5.2 Environmental Effects**

24 **No Action Alternative**

25 Under the No Action Alternative, cultural resources would continue to be managed in adherence
26 with all applicable federal laws and the ICRMP. The cultural resource management staff at the
27 installation would continue to consult with the SHPO and applicable tribes on the effects of
28 undertakings that may affect cultural resources. Activities with the potential to affect cultural
29 resources would continue to be monitored and regulated through the use of existing agreements
30 and/or preventative and minimization measures. The effects of the No Action Alternative would
31 be minor and would come from the continuation of undertakings that have the potential to affect
32 archaeological and architectural resources (e.g., training, maintenance of historic buildings and
33 new construction).

34 **Alternative 1—Implement Force Reductions**

35 Alternative 1 would have a minor, adverse impact on cultural resources. As discussed in Chapter
36 1, the potential demolition of existing buildings as a result of force reductions is not reasonably
37 foreseeable and not part of the scope of this SPEA; therefore, potential impacts to subsurface

1 archaeological sites and historic structures are not analyzed. If future site-specific analysis
2 indicates that it is necessary to vacate or demolish structures as a result of Army force
3 reductions, potential impacts could be analyzed in separate, future NEPA analyses and
4 consultation conducted, as appropriate, by Joint Base San Antonio³⁵ to avoid, minimize, and/or
5 mitigate these effects. Additionally, the Army is committed to ensuring that personnel cuts will
6 not result in Army non-compliance with cultural resources regulations.

7 The effects of this alternative are considered to be similar to the No Action Alternative. Future
8 activities with the potential to effect cultural resources would continue to be monitored and the
9 impacts reduced through preventative and minimization measures.

10 **4.28.6 Noise**

11 **4.28.6.1 Affected Environment**

12 Noise sources common to Joint Base San Antonio-Fort Sam Houston include helicopters,
13 automobiles and other nontactical vehicles, and routine operation of equipment and machinery
14 such as generators; heating, ventilation and air conditioning; and construction equipment. Life
15 Flight operations using the SAMMC helipad represent another intermittent noise source. Life
16 Flight operations have neither established routes into and out of the helipad nor altitude
17 restrictions, but the general directions of the flight routes are to the northeast, southeast and
18 southwest. The low number of helicopter operations is not sufficient to generate significant,
19 adverse noise impacts.

20 Major sources of noise at Camp Bullis include small arms ranges, the use of explosive simulators
21 in training areas and ranges, the use of explosives during quarrying and training exercises, and
22 aircraft noise. A sound system with outside speakers is used at Camp Bullis to provide exercise
23 inputs at the medical training facility. Medical trainers have direct control over the exercise
24 speaker volume, and sounds from these speakers cannot be heard beyond 100 meters. Several
25 generators may also be in use at any time during field medical training activities. Noise sources
26 are interspersed throughout the installation, and noise, including that from ground combat blast
27 simulators and small- and large-caliber weapons, is generally confined to the installation.
28 Limited helicopter flights and occasional fixed wing operations on a Combat Assault Landing
29 Strip project noise into the surrounding areas.

30 Noise-sensitive areas at Fort Sam Houston include SAMMC and the three schools in the Fort
31 Sam Houston ISD. The ISD schools include the Robert G. Cole Junior/Senior High School, the
32 Fort Sam Houston Elementary School and an alternative education school. Noise effects on

³⁵ Joint Base San Antonio includes all Army and Air Force installations under this joint base.
Management activities, including environmental compliance, are under the authority of the Air Force.

1 occupants of these facilities are not expected. No sensitive noise areas are present at
2 Camp Bullis.

3 **4.28.6.2 Environmental Effects**

4 **No Action Alternative**

5 Under the No Action Alternative, no force reductions would take place at Joint Base San
6 Antonio-Fort Sam Houston. Existing operations and personnel levels would remain the same as
7 under existing conditions, and existing noise sources and intensity would remain unchanged.
8 Given the generally low overall noise levels at the installations, minimal presence of noise-
9 sensitive areas, limited frequency of higher-intensity noise events, and general confinement of
10 noise to areas within the installation, adverse impacts associated with the No Action Alternative
11 would be negligible.

12 **Alternative 1—Implement Force Reductions**

13 Under Alternative 1, force reductions would be implemented at Joint Base San Antonio-Fort
14 Sam Houston. Existing operations and personnel levels would be reduced from existing
15 conditions. Existing noise sources and intensity would remain similar in character; however,
16 noise events would occur less frequently. Noise-sensitive areas surrounding the installation
17 would remain similar in character to those currently present. Overall, noise impacts associated
18 with force reductions would be similar in nature to impacts from the No Action Alternative, but
19 with fewer personnel. Alternative 1 would therefore have slight beneficial impacts to noise.
20 Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of
21 the Air Force; therefore, health and safety requirements, including noise compliance, would
22 continue to be met by the Air Force. The Army is committed, however, to ensuring that
23 personnel cuts will not result in the Army's non-compliance with noise ordinances
24 and regulations.

25 **4.28.7 Soils**

26 **4.28.7.1 Affected Environment**

27 Joint Base San Antonio-Fort Sam Houston consists of several installations; however, most Army
28 activities and personnel stationed at Joint Base San Antonio-Fort Sam Houston are concentrated
29 at Fort Sam Houston and Camp Bullis. Fort Sam Houston lies within the West Gulf Coastal plain
30 physiographic province; whereas, Camp Bullis lies within the Edwards Plateau Great Plains
31 physiographic province. The two physiographic provinces are separated by the Balcones fault
32 zone (Stein and Ozuna, 1995). Fort Sam Houston is primarily underlain by Cretaceous period
33 calcareous material such as marl and glauconite which are overlain with Quaternary period
34 alluvial deposits (USACE, 2007). The geology of Camp Bullis consists primarily of Cretaceous
35 period limestone from the Edwards Group and Glen Rose formations (U.S. Army, 2001a, as

1 cited by USACE, 2007). As a result of the underlying limestone, Camp Bullis contains many
2 features associated with karst topography such as sinkholes, springs, and caves.

3 Upland soils on Fort Sam Houston are primarily from the Heiden and Houston Black soil series.
4 These soils are characterized as deep to very deep, moderately well drained to well drained, and
5 gently rolling. Floodplain and stream terrace soils on Fort Sam Houston are primarily from the
6 Loire, Lewisville, and Sunev soil series. These soils are characterized as flat to gently rolling,
7 deep to very deep and well drained. All of the soils on Fort Sam Houston are comprised
8 primarily of heavy clay (NRCS, 2013).

9 Upland soils on Camp Bullis are primarily from the Brackett and Eckrant soil series. These soils
10 are characterized as moderately steep to steep, very shallow, and well drained. Floodplain and
11 stream terrace soils on Camp Bullis are primarily from the Crawford, Krum, and Lewisville soil
12 series, and are characterized as deep to very deep, well drained and flat to gently rolling. All of
13 the soils on Camp Bullis are comprised of clay and clay loam (NRCS, 2013).

14 Soils on both installations are moderately to highly erodible. The high clay content can cause
15 surface crusting which can decrease the rate of infiltration and increase the rate of surface runoff.
16 BMPs to minimize soil erosion are utilized on both installations (USACE, 2007).

17 **4.28.7.2 Environmental Effects**

18 **No Action Alternative**

19 Minor, adverse impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated
20 under the No Action Alternative. Range training activities at Camp Bullis would continue under
21 the current schedule, resulting in minimal impacts from ground disturbance and removal of
22 vegetation. Management of soils to minimize erosion would continue. There would be negligible
23 impacts to soils at Fort Sam Houston.

24 **Alternative 1—Implement Force Reductions**

25 Beneficial impacts to soils on Joint Base San Antonio-Fort Sam Houston are anticipated under
26 Alternative 1. Force reductions at Camp Bullis would likely result in decreased use of the
27 training ranges, which could have beneficial impacts to soils because there would be an
28 anticipated decrease in soil compaction and vegetation loss. Because there are no active ranges
29 on Fort Sam Houston, a force reduction would not lead to fewer impacts from these types
30 of activities.

31 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
32 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
33 potential impacts from these activities on soils are not analyzed.

1 Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of
2 the Air Force, so measures to maintain compliance regarding soils management would continue
3 to be met by the Air Force. The Army is committed, however, to ensuring that personnel cuts
4 will not result in Army non-compliance with regulations affecting soils.

5 **4.28.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered** 6 **Species)**

7 **4.28.8.1 Affected Environment**

8 **Vegetation**

9 Fort Sam Houston is located within the city of San Antonio in Bexar County, Texas. Camp
10 Bullis is located north of San Antonio in Comal County, Texas. About 70 percent of the affected
11 environment on Fort Sam Houston consists of developed urban areas. The remaining 30 percent
12 is not developed and lies within the floodplain of Salado Creek (USACE, 2007). Camp Bullis is
13 mostly undeveloped. Fort Sam Houston is situated within the Northern Blackland Prairie ecoregion
14 of Texas and Camp Bullis lies within the Balcones Canyonlands ecoregion (Griffith et al., 2004).

15 The vegetation on Fort Sam Houston was historically dominated by little bluestem, big bluestem,
16 yellow indiagrass and tall dropseed (*Sporobolus composites*), but it is now primarily maintained
17 grasslands with vegetation typical of the urbanized, anthropomorphically altered Blackland
18 Prairies (USACE, 2007). Vegetation along the undeveloped portion of Salado Creek includes
19 asters (*Asteraceae* spp.), prairie bluet (*Coenagrion angulatum*), prairie clovers (*Petalostemum*
20 *purpureum*), and black-eyed Susan (*Rudbeckia hirta*). Trees along the undeveloped Salado
21 Creek include bur oak (*Quercus macrocarpa*), Shumard's oak (*Quercus shumardii*), sugar
22 hackberry (*Celtis laevigata*), elm, ash, eastern cottonwood (*Populus deltoides*), pecan, juniper
23 (*Juniperus ashei*) evergreen sumac (*Rhus virens*), common sotol (*Dasylyrion wheeleri*), acacia
24 (*Acacia* spp.), honey mesquite (*Prosopis glandulosa*), and ceniza (*Agave colorata*) (Fort Sam
25 Houston, 2009).

26 Vegetation on Camp Bullis consists of more than 500 plant species that can be grouped into five
27 distinct plant communities: woodland plant communities of intermittent streams and adjacent
28 floodplains, wetland plant communities, grassland savanna plant communities, upland wood
29 plant communities and plant succession on disturbed ground. Woodland plant communities
30 comprise over half of the environment on Camp Bullis while grassland savannahs dominant the
31 majority of the remaining land (USACE, 2007).

32 **Wildlife**

33 Wildlife on Fort Sam Houston is primarily characterized by species which are especially tolerant
34 of urbanization. Urban species found on Fort Sam Houston include fox squirrel, house sparrow,
35 grackle (*Quiscalus* spp.) and American robin. The small portion of the installation in the Salado

1 Creek floodplain houses a greater diversity of wildlife including birds, mammals, and fish.
2 Habitat use on Fort Sam Houston varies seasonally, particularly with regard to migratory birds.
3 Common species observed during winter months include the white-winged dove (*Zenaida*
4 *asiatica*) and northern cardinal, while waterfowl species are expected to use the Salado Creek
5 floodplain throughout the year. Mammal species found in and around Salado Creek include
6 mammals such as beaver, armadillo (*Dasypus novemcinctus*) and opossum. Fish species in the
7 creek include bluegill, largemouth bass, and Rio Grande perch (*Cichlasoma cyanoguttatum*).
8 Camp Bullis contains at least 57 mammal species, 157 bird species, 92 species of reptiles and
9 amphibians, and 14 species of fish (USACE, 2007).

10 **Threatened and Endangered Species**

11 According to USFWS, 19 species protected under the ESA potentially occur or imminently are
12 affected by actions in Bexar County, and 10 species potentially occur or imminently are
13 affected by actions in Comal County. Neither Fort Sam Houston nor Camp Bullis contain
14 critical habitat for any federally listed species. However, several threatened and endangered bird
15 species could use portions of the installations during annual migration, including the whooping
16 crane) and Arctic peregrine falcon (*Falco peregrine tundrius*) (USACE, 2007). Two species
17 listed as threatened by the state of Texas, the widemouth blindcat (*Satan eurystomus*) and the
18 toothless blindcat (*Trogloglanis pattersoni*), may be present on Fort Sam Houston. Both of these
19 species are blind catfish that live entirely in the dark parts of caves in the Edwards Aquifer and
20 are endemic to five artesian wells in the San Antonio pool of the Edwards Aquifer, in the
21 southern and eastern portions of San Antonio, Bexar County (Fort Sam Houston, 2009). Camp
22 Bullis contains habitat and current populations of five federally endangered species: golden-
23 cheeked warbler (*Dendroica chrysoparia*), black-capped vireo (*Vireo atricapilla*), Madla's
24 Cave meshweaver (*Cicurina madla*) and two unnamed beetles (*Rhadine exilis* and *R. ewersi*).
25 Camp Bullis is also home to two state-listed threatened species—Cascade Caverns salamander
26 (*Eurycea latitans*) and Comal blind salamander (*Eurycea tridentifera*) (USACE, 2007). Camp
27 Bullis also manages seasonal nesting habitat for the golden-cheeked warbler.

28 **4.28.8.2 Environmental Effects**

29 **No Action Alternative**

30 Implementation of the No Action Alternative would result in no impacts to biological resources
31 and the affected environment would remain in its current state.

32 **Alternative 1—Implement Force Reductions**

33 Implementation of Alternative 1 would result in slight beneficial impacts to biological resources
34 including vegetation, wildlife, or threatened and endangered species. The potential for
35 disturbances to the affected environment on Joint Base San Antonio-Fort Sam Houston are
36 minimal because the majority of the land cover is anthropogenically altered habitat. The
37 proposed reduction in personnel under Alternative 1 could further alleviate any existing pressure

1 to biological resources on Joint Base San Antonio-Fort Sam Houston. Environmental compliance
 2 at Joint Base San Antonio-Fort Sam Houston is under the authority of the Air Force, so measures
 3 to maintain compliance regarding natural resource management would continue to be met by the
 4 Air Force. The Army is committed, however, to ensuring that personnel cuts will not result in
 5 Army non-compliance with natural resources regulations.

6 **4.28.9 Wetlands**

7 **4.28.9.1 Affected Environment**

8 A review of NWI maps identified approximately 278 acres of palustrine, lacustrine, riverine, and
 9 freshwater pond wetlands within Fort Sam Houston and Camp Bullis at Joint Base San Antonio-
 10 Fort Sam Houston (USFWS, 2010). Of the 278 acres identified, approximately 261 acres are on
 11 Camp Bullis and approximately 17 acres are on Fort Sam Houston. NWI mapping is an educated
 12 delineation based upon interpreting USGS topographic data, the USGS National Hydrography
 13 Dataset, NRCS soil data, and aerial imagery. No formal wetland delineation of the installation
 14 was performed.

15 The majority of the wetlands identified through NWI were open water systems, including ponds
 16 and lakes; however, riverine, palustrine forested, scrub-shrub, and emergent wetlands were also
 17 identified (USFWS, 2010). Table 4.28-2 identifies the acres of each wetland type on Fort Sam
 18 Houston and Camp Bullis.

19 **Table 4.28-2. Acres of Wetland Types on Fort Sam Houston and Camp Bullis**

Wetland Type	Acres
Fort Sam Houston	
Palustrine forested	14
Palustrine open water	3
Camp Bullis	
Palustrine Forested	11
Palustrine Scrub-shrub	12
Palustrine Emergent	40
Palustrine Open Water	82
Lacustrine	89
Riverine	27
Total acres for Fort Sam Houston and Camp Bullis	278

20 Source: USFWS (2010)

1 **4.28.9.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts to wetlands on Joint Base San Antonio-Fort Sam Houston are anticipated
4 under the No Action Alternative. Training activities on the ranges would continue to occur under
5 current schedules and impacts to wetlands from these activities would continue. Additionally,
6 impacts to wetlands from any current projects under construction would have already been
7 assessed and, if required, been properly permitted and mitigated. Current management of
8 wetlands would continue under the No Action Alternative. Current management of recreational
9 facilities, such as golf courses, would also continue under the No Action Alternative and could
10 contribute to pollutants entering adjacent wetlands and ponds.

11 **Alternative 1—Implement Force Reductions**

12 Beneficial impacts to wetlands on Joint Base San Antonio-Fort Sam Houston as a result of the
13 implementation of Alternative 1 are anticipated. A force reduction at Joint Base San Antonio-
14 Fort Sam Houston would mean that training ranges would be used less frequently. As a result,
15 there would be less sedimentation from runoff entering wetland areas, fewer instances of
16 vegetation becoming denuded, and wetland functions and values would remain intact. Adverse
17 impacts to wetlands could conceivably occur if force reductions decreased environmental
18 staffing levels to a point where environmental compliance could not be properly implemented.
19 Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of
20 the Air Force, so measures to maintain compliance regarding wetland management and
21 compliance would continue to be met by the Air Force. The Army is committed, however, to
22 ensuring that personnel cuts will not result in Army non-compliance with wetland regulations.

23 **4.28.10 Water Resources**

24 **4.28.10.1 Affected Environment**

25 **Surface Water/Watersheds**

26 The main surface water draining Fort Sam Houston is Salado Creek, an intermittent stream
27 flowing south through the eastern portion of the installation. Flow is predominantly precipitation
28 driven with recharge from local artesian springs. The western portion of the installation is
29 drained by Alamo Ditch, a small tributary of the San Antonio River. The city of San Antonio
30 MS4 covers the highly impervious southern and central portions of the installation eventually
31 draining to the Salado River.

32 Camp Bullis, to the north of Fort Sam Houston, is also drained by upper reaches of Salado
33 Creek, and tributary Lewis Creek, as well as Cibolo Creek, Meusebach Creek, and Panther
34 Springs Creek. The smaller surface waters are intermittent and dry for most of the year except
35 during and following rain events. Salado Creek, located on the western portion of Camp Bullis,

1 runs southeast. Two constructed stormwater control structures hold and attenuate smaller
2 amounts of stormwater runoff. Groundwater surfaces as springs along Lewis Creek and Panther
3 Springs Creek before eventually disappearing into streambed fractures, caves, and sinkholes
4 (U.S. Army, 2005, as cited by USACE, 2007).

5 The Salado Creek designated uses are contact recreation, high aquatic life, public water supply,
6 and aquifer protection (Texas NRCC, 2001). The Salado Creek reaches within both Fort Sam
7 Houston and Camp Bullis borders are impaired due to inability to meet bacteria water quality
8 standards (Texas CEQ, 2013). Immediately north of Fort Sam Houston, Salado Creek is impaired
9 for depressed dissolved oxygen (Texas CEQ, 2013). Sources for potential surface water quality
10 issues include former landfills within the Salado Creek floodplain, golf course runoff, and other
11 nonpoint sources (USACE, 2007).

12 **Groundwater**

13 The artesian zone of Edwards Aquifer is the major groundwater source under Fort Sam Houston.
14 The groundwater in this area is confined between the Del Rio clay layer and the Glen Rose
15 Formation. The aquifer is recharged by surface waterbodies and precipitation. In general, water
16 flow within the aquifer is west to east however variations in porosity and permeability as well as
17 aquifer faults determine specifics of water movement.

18 Contamination of groundwater within the Edwards Aquifer has occurred due to unnatural and
19 natural sources. Dense, less permeable rock impedes groundwater movement causing natural
20 contamination from dissolution of mineral solids. Total dissolved solid concentrations of up to
21 1,000 parts per million have been observed leading to saline, non-potable waters (USACE,
22 2007). Five wells draw groundwater from depths of 728 to 1,106 feet below the surface for water
23 supply (U.S. Army, 2001b, as cited by USACE, 2007). Because of a hydrologic connection
24 between aquifer and spring levels, too much pumping of aquifer water for water supplies could
25 reduce spring flows (USACE, 2007).

26 Both Trinity and Edwards Aquifers occur under Camp Bullis. Surface waters and precipitation
27 on Camp Bullis lands recharge both aquifers. Trinity Aquifer occurs under a majority of the
28 Camp although Edwards Aquifer recharge areas occur in small portions of the northern and
29 southeast areas of Camp Bullis. Camp Bullis wells draw water from the upper Trinity Aquifer
30 further north of Edwards Aquifer (U.S. Army, 2006, as cited by USACE, 2007).

31 **Water Supply**

32 Joint Base San Antonio-Fort Sam Houston draws water from the Edwards and Trinity aquifers
33 for water supply (U.S. Army, 2001b, as cited by USACE, 2007; USACE, 2007). In addition to
34 the installations, San Antonio and 16 other cities use the Edwards Aquifer for their water supply
35 (U.S. Army, 2001b, as cited by USACE, 2007). Estimations predict that this aquifer can provide
36 regional water supplies for an additional 200 to 300 years; however, only 5 to 10 percent of

1 spring or artesian waters are able to be withdrawn (U.S. Army, 1996, as cited by USACE, 2007).
2 Pumping limits are required for the installation so that water withdrawal will not exceed
3 USFWS-recommended limits set to protect threatened and endangered species.

4 Five Fort Sam Houston wells draw water from the Edwards Aquifer for water supply (U.S.
5 Army, 2001b, as cited by USACE, 2007). Total production capacity of the five Fort Sam
6 Houston potable water wells is 14 mgd. Two elevated storage tanks have a capacity of 2.05
7 million gallons. There are two WWTPs on Fort Sam Houston, located in the southwest and
8 northeast, which chemically treat well water before storage. The water is treated with chlorine,
9 fluoride, and corrosion inhibitors.

10 Three Camp Bullis wells draw water from the Trinity Aquifer for water supply. Two of the three
11 wells have a capacity of 0.19 mgd, while the third is restricted to 40 gallons per minute to control
12 aquifer drawdown (USACE, 2007). Two elevated storage tanks have a capacity of 0.45 million
13 gallons. The water is treated with chlorine, fluoride, and corrosion inhibitors before it is pumped
14 to the storage tanks.

15 The installation has instituted a water use reduction and conservation program. Measures include
16 upgrades to the water distribution system, an irrigation and landscaping policy, car washing
17 restrictions, water reuse, and water recycling (U.S. Army, 2001c, as cited by USACE, 2007;
18 USACE, 2007). Recycled water is used for irrigation and tower cooling on Fort Sam Houston.
19 Camp Bullis uses treated wastewater effluent for range irrigation through a zero
20 discharge permit.

21 **Wastewater**

22 Approximately 262,000 linear feet of pipelines of varying diameters and materials collect
23 wastewater on Fort Sam Houston relying mainly on gravity to move the flow to sewer mains.
24 One lift station assists with wastewater movement in the northeast of Fort Sam Houston. San
25 Antonio Water System receives the wastewater when it leaves the installation. Fort Sam Houston
26 has wastewater discharge permits.

27 Approximately 43,000 linear feet of pipelines collect wastewater on Camp Bullis with the
28 assistance of six lift stations for transport to the WWTP. This treatment plant uses a
29 conventional, activated-sludge process before off-installation disposal (U.S. Army, 2001b). The
30 design capacity for the treatment plant is 0.68 mgd daily flow and 2.38 mgd 2-hour peak flow
31 (USACE 2007). Treated wastewater effluent is reused for firing range irrigation under a zero
32 discharge permit.

1 **Stormwater**

2 Portions of the installation are developed and contain impervious surfaces; approximately 20
3 percent of Fort Sam Houston is impervious land (USACE, 2007). In addition to greater amounts
4 of stormwater runoff, these impervious surfaces also lead to more pollutants entering surface
5 waters. The impervious southern and central areas of Fort Sam Houston are drained by the city
6 of San Antonio MS4, which discharges to Salado Creek (USACE, 2007). In other areas the
7 Salado Creek and Alamo Ditch receive surface stormwater runoff. Issues resulting from
8 stormwater runoff within Fort Sam Houston include erosion, sedimentation, and infrastructure
9 damage (USACE, 2007). Natural channels receive the overland stormwater runoff throughout
10 Camp Bullis eventually discharging this flow into the San Antonio River.

11 The NPDES General Permit for Stormwater Discharge Associated with Industrial Activities
12 (TXR05M458) for the installation requires implementation of BMPs and preparation of an
13 SWPPP (USACE, 2007). Monitoring for the permit includes collecting stormwater runoff
14 samples along Salado Creek. Past years have shown no exceedances of the permit guidelines
15 except for chemical oxygen demand, iron, and total suspended solids (USACE, 2007).

16 **Floodplains**

17 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
18 and any adverse impacts from the use or modification of floodplains when there is a feasible
19 alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required to “reduce the
20 risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to
21 restore and preserve the natural and beneficial values served by floodplains in carrying out its
22 responsibilities.” The 100-year floodplain indicates areas where the flood has a 1 percent chance
23 of being equaled or exceeded in any year. The 500-year floodplain indicates area where the flood
24 has a 0.2 percent chance of being equaled or exceeded in any year.

25 Within Fort Sam Houston, specific areas designated as 100-year and 500-year floodplains
26 include areas adjacent to Salado Creek, especially the entire eastern portion of the installation
27 (USACE, 2007). Flooding in this area occurs about once every 3 to 4 years (USACE, 2007). Six
28 former landfills are located within the Salado Creek floodplain of Fort Sam Houston (USACE,
29 2007). Within Camp Bullis, 100-year floodplain exists adjacent to Salado Creek and small areas
30 along the main stream channels and tributaries running through the installation borders. Two
31 flood control reservoirs, monitored by NRCS and the San Antonio River Authority, store and
32 retain stormwater flows along Salado and Lewis Creeks preventing serious flooding for Camp
33 Bullis land.

1 **4.28.10.2 Environmental Effects**

2 **No Action Alternative**

3 Minor, adverse impacts to water resources are anticipated from the No Action Alternative.
4 Training activities would continue to occur at Joint Base San Antonio-Fort Sam Houston ranges
5 as would potential disturbance to and sedimentation of surface water resources. Joint Base San
6 Antonio-Fort Sam Houston would continue to strive to meet federal and state water quality
7 criteria, drinking water standards, and floodplain management requirements. Stormwater
8 management would continue under the existing NPDES permits as would adherence to state
9 stormwater requirements and BMP guidelines. Current water resources management and
10 compliance activities would continue to occur under this alternative.

11 **Alternative 1—Implement Force Reductions**

12 Beneficial impacts to water resources are anticipated as a result of implementing Alternative 1. A
13 force reduction would result in fewer training exercises thereby decreasing the potential for
14 surface water disturbance and sedimentation. A force reduction would decrease demand for
15 potable water and would reduce groundwater withdrawals. Demand for wastewater treatment
16 would also decrease, allowing additional capacity for other users. Adverse impacts could
17 conceivably occur if personnel cuts prevented environmental compliance from being
18 implemented. Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under
19 the authority of the Air Force, so measures to maintain compliance regarding water resource
20 management would continue to be met by the Air Force. The Army is committed, however, to
21 ensuring that personnel cuts will not result in Army non-compliance with water quality
22 regulations. Army force reductions at Joint Base San Antonio-Fort Sam Houston are not
23 anticipated to cause violations of federal and state water quality regulations and
24 discharge permits.

25 **4.28.11 Facilities**

26 **4.28.11.1 Affected Environment**

27 Joint Base San Antonio-Fort Sam Houston's facilities support its mission of medical training and
28 practice. Mission facilities are primarily characterized as administrative, classroom, hospital and
29 clinic space. Joint Base San Antonio-Fort Sam Houston is a 2,940-acre installation that does not
30 have an airfield or warfighting maneuver or training ranges. Supporting facilities at Joint Base
31 San Antonio-Fort Sam Houston include Family housing, troop housing, recreational facilities,
32 commercial and community facilities, vehicle and equipment maintenance facilities, and supply
33 distribution facilities (USACE, 2007).

34 Camp Bullis encompasses 27,987 acres and is primarily used for military training. It is divided
35 into three general areas: the cantonment area (about 600 acres), the impact area (about 6,000
36 acres), and the maneuver areas (about 21,400 acres). The Camp Bullis cantonment area has most

1 of the administrative and support facilities including offices, warehouses, classrooms, barracks,
2 munitions and explosives storage, and water and wastewater treatment systems. The other
3 facilities at Camp Bullis include target ranges, training areas, airspace, and outdoor recreation
4 facilities (USACE, 2007).

5 **4.28.11.2 Environmental Effects**

6 **No Action Alternative**

7 No impacts are anticipated under the No Action Alternative. Joint Base San Antonio-Fort Sam
8 Houston would continue to use its existing facilities to support its tenants and missions.

9 **Alternative 1—Implement Force Reductions**

10 Under Alternative 1, implementation of the proposed force reductions would result in overall
11 minor, adverse impacts. Impacts would occur from the fact that future, programmed construction
12 or expansion projects may not occur or could be downscoped; moving occupants of older,
13 underutilized, or excess facilities into newer facilities may require modifications to existing
14 facilities; and a greater number of buildings on the installation may become vacant or
15 underutilized due to reduced requirements for facilities, which would have a negative impact on
16 overall space utilization. Some beneficial impacts are also expected as a reduction in the
17 frequency of training exercises at Camp Bullis would be beneficial for maintaining ranges and
18 training areas and thereby improving sustainability of those facilities. A decrease in training
19 operational tempo and related heavy equipment use would be beneficial for the maintenance and
20 sustainability of roadways and off-road maneuver areas. As discussed in Chapter 1, the
21 demolition of existing buildings or placing them in caretaker status as a result of the reduction in
22 forces is not reasonably foreseeable and not part of the scope of this SPEA; therefore, potential
23 impacts from these activities are not analyzed.

24 If Army reductions result in impacts to the utilization of facilities and/or training areas at this Air
25 Force-managed joint base, the Air Force could conduct any required site-specific NEPA
26 analyses, as appropriate, and make the final determinations regarding disposition of these
27 affected facilities and/or training areas.

28 **4.28.12 Socioeconomics**

29 **4.28.12.1 Affected Environment**

30 Joint Base San Antonio-Fort Sam Houston is situated in Bexar County within the city of San
31 Antonio, Texas. The ROI for the joint base in this analysis includes counties that are generally
32 considered the geographic extent to which the majority of the joint base's Soldiers, Army
33 civilians, and contractor personnel and their Families reside. The ROI for Joint Base San
34 Antonio-Fort Sam Houston consists of Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall,

1 Medina, and Wilson counties in Texas. This section provides a summary of demographic and
 2 economic characteristics within the ROI.

3 **Population and Demographics**

4 Using 2013 as a baseline, Joint Base San Antonio-Fort Sam Houston has a total working
 5 population of 37,356 consisting of permanent party Soldiers and Army civilians, students and
 6 trainees, other military services, civilians and contractors. Of the total working population,
 7 12,256 were permanent party Soldiers and Army civilians. Joint Base San Antonio-Fort Sam
 8 Houston provides medical training for Soldiers and averages approximately 11,800 students
 9 assigned on the joint base for training at any given time.

10 In 2012, the population of the ROI exceeded 2.2 million, a 4.3 percent increase from 2010.
 11 Compared to 2010, the 2012 population increased in all of the counties in the ROI, with the
 12 greatest increase in Kendall County (Table 4.28-3). The racial and ethnic composition of the ROI
 13 is presented in Table 4.28-4 (U.S. Census Bureau, 2012a).

14 **Table 4.28-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Atascosa County, Texas	46,423	+3.4
Bandera County, Texas	20,586	+0.5
Bexar County, Texas	1,785,787	+4.1
Comal County, Texas	114,590	+5.6
Guadalupe County, Texas	139,873	+6.3
Kendall County, Texas	35,968	+7.7
Medina County, Texas	46,871	+1.9
Wilson County, Texas	44,396	+3.5

15 Source: U.S. Census Bureau (2012a)

1 **Table 4.28-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Texas	80.6	12.3	1	1.7	38.2	4.2	44.5
Atascosa County, Texas	96.0	1.2	1.1	1.1	62.5	0.5	35.4
Bandera County, Texas	96.6	0.6	1.1	1.3	17.3	0.3	80.1
Bexar County, Texas	85.6	8.1	1.2	2.1	59.1	2.7	29.8
Comal County, Texas	94.7	2.0	0.8	1.5	25.8	0.8	70.1
Guadalupe County, Texas	87.5	7.3	1.0	2.3	36.3	1.7	53.5
Kendall County, Texas	96.2	0.8	0.7	1.4	21.3	0.8	75.9
Medina County, Texas	94.3	2.6	1.0	1.2	50.5	0.8	45.7
Wilson County, Texas	95.4	1.8	0.9	1.4	38.9	0.5	58.0

2 Source: U.S. Census Bureau (2012a)

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Sales**

5 In 2012, the total employed labor force in the ROI was 988,625, the majority of which resides in
 6 Bexar County. Between 2000 and 2012, total employed labor force (including Soldiers and
 7 Army civilians) increased in all of the ROI counties, with the greatest increase in Kendall,
 8 Wilson, and Comal counties (Table 4.28-5). Employment, median home value, household
 9 income, and poverty levels are presented in Table 4.28-5 (U.S. Census Bureau, 2012b).

1 **Table 4.28-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Texas	11,546,783	23.6	\$128,000	\$60,621	13.5
Atascosa County, Texas	18,578	20.2	\$83,300	\$51,834	14.0
Bandera County, Texas	8,588	9.3	\$141,400	\$59,797	9.5
Bexar County, Texas	791,377	27.3	\$122,600	\$58,023	13.8
Comal County, Texas	51,233	40.3	\$202,200	\$76,326	6.9
Guadalupe County, Texas	63,732	52.2	\$154,300	\$73,684	7.7
Kendall County, Texas	16,056	46.7	\$272,800	\$84,630	4.0
Medina County, Texas	18,552	14.1	\$109,800	\$60,974	14.4
Wilson County, Texas	20,509	45.8	\$139,300	\$69,731	8.7

2 Source: U.S. Census Bureau (2012b, 2000)

3 Information regarding the workforce by industry for each county within the ROI was obtained
 4 from the U.S. Census Bureau. Information presented below is for the employed labor force.
 5 Information on major employers were not readily available for all counties in the ROI.

6 ***Atascosa County, Texas***

7 According to the U.S. Census Bureau, the educational services, health care and social assistance
 8 sector accounts for the greatest share of total workforce in Atascosa County (23 percent).
 9 Construction is the second largest employment sector (14 percent), followed by retail trade
 10 (13 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
 11 remaining 10 employment sectors account for a combined 60 percent of total county
 12 employment (U.S. Census Bureau, 2010).

13 ***Bandera County, Texas***

14 According to the U.S. Census Bureau, the educational services, health care and social assistance
 15 sector accounts for the greatest share of total workforce in Bandera County (19 percent).
 16 Construction is the second largest employment sector (13 percent), followed by retail trade (12
 17 percent). The Armed Forces account for less than 1 percent of the county's workforce. The

1 remaining 10 employment sectors account for a combined 56 percent of total county
2 employment (U.S. Census Bureau, 2010).

3 **Bexar County, Texas**

4 According to the U.S. Census Bureau, the educational services, health care and social assistance
5 sector accounts for the greatest share of total workforce in Bexar County (22 percent). Retail
6 trade is the second largest employment sector (12 percent), followed by professional, scientific,
7 and management, and administrative and waste management services (11 percent). The Armed
8 Forces account for 2 percent of the county's workforce. The remaining 10 employment sectors
9 account for a combined 55 percent of total county employment (U.S. Census Bureau, 2010).

10 Major employers in Bexar County include Joint Base San Antonio, H.E.B. Grocery Company,
11 Northside ISD, and USAA (Bexar County, 2012).

12 **Comal County, Texas**

13 According to the U.S. Census Bureau, the educational services, and health care and social
14 services sector accounts for the greatest share of total workforce in Comal County (20 percent).
15 Retail trade is the second largest employment sector (13 percent), followed by construction (11
16 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
17 remaining 10 employment sectors account for a combined 56 percent of total county
18 employment (U.S. Census Bureau, 2010).

19 Major employers in Comal County include Comal ISD, Schlitterbahn Water Park, The Scooter
20 Store, and Walmart Distribution Center (Comal County Auditor's Office, 2012).

21 **Guadalupe County, Texas**

22 According to the U.S. Census Bureau, the educational services, and health care and social
23 assistance sector accounts for the greatest share of total workforce in Guadalupe County (21
24 percent). Retail trade is the second largest employment sector (13 percent), followed by
25 manufacturing (11 percent). The Armed Forces account for 2 percent of the county's workforce.
26 The remaining 10 employment sectors account for a combined 55 percent of total county
27 employment (U.S. Census Bureau, 2010).

28 Major employers in Guadalupe County include city of Schertz, city of Seguin, CMC Steel Texas,
29 and Continental AG (Guadalupe County Auditor's Office, 2013).

30 **Kendall County, Texas**

31 According to the U.S. Census Bureau, the educational services, and health care and social
32 assistance sector accounts for the greatest share of total workforce in Kendall County (21
33 percent). Professional, scientific, and management, and administrative and waste management
34 services is the second largest employment sector (12 percent), followed by construction (11

1 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
2 remaining 10 employment sectors account for a combined 56 percent of total county
3 employment (U.S. Census Bureau, 2010).

4 Major employers in Kendall County include Boerne ISD, H.E.B. Grocery Stores, Walmart Super
5 Center, and Mission Pharmacal (Kendall County, 2014).

6 **Medina County, Texas**

7 According to the U.S. Census Bureau, the educational services, and health care and social
8 assistance sector accounts for the greatest share of total workforce in Medina County
9 (24 percent). Construction is the second largest employment sector (10 percent), followed by
10 retail trade (10 percent). The Armed Forces account for less than 1 percent of the county's
11 workforce. The remaining 10 employment sectors account for a combined 56 percent of total
12 county employment (U.S. Census Bureau, 2010).

13 **Wilson County Texas**

14 According to the U.S. Census Bureau, the educational services, and health care and social
15 services sector accounts for the greatest share of total workforce in Wilson County (23 percent).
16 Construction is the second largest employment sector (11 percent), followed by retail trade (10
17 percent). The Armed Forces account for less than 1 percent of the county's workforce. The
18 remaining 10 employment sectors account for a combined 56 percent of total county
19 employment (U.S. Census Bureau, 2010).

20 **Housing**

21 Housing on Joint Base San Antonio-Fort Sam Houston is privatized. This privatization took
22 effect on March 1, 2005 and is a partnership between the Army and Lincoln Military Housing.
23 There are 925 homes offered to military personnel through Lincoln Military Housing within
24 8 villages on Fort Sam Houston (Air Force Housing, 2014). This military housing provides many
25 benefits to service members and their Families including, utilities and renters insurance, no credit
26 checks or deposits, and community events and activities (Air Force Housing, 2014).

27 Benner Barracks is located on Fort Sam Houston and consists of 288 barracks spaces. The new
28 NCO Barracks is located directly across the street from Benner Barracks and consists of 96
29 Barracks spaces. Located on the Medical Center Annex is Okubo Barracks consisting of 296
30 barracks spaces (Air Force Housing, 2014).

31 **Schools**

32 An elementary, middle, and high school are located on Fort Sam Houston. This includes Fort
33 Sam Houston Elementary School (serving students pre-kindergarten through grade 5), the Robert
34 G. Cole Middle School (serving students in grades 6 through 8), the Robert G. Cole High School,

1 and the Military School District's Academy and Special Education (serving special needs
2 students from Joint Base San Antonio-Fort Sam Houston) (Fort Sam Houston ISD, 2014).

3 **Public Health and Safety**

4 ***Police Services***

5 The Fort Sam Houston Police Department responds to calls at Fort Sam Houston (Fort Sam
6 Houston, 2014a).

7 ***Fire and Emergency Services***

8 Fire Emergency Services on Joint Base San Antonio-Fort Sam Houston provides fire prevention,
9 structural firefighting, technical rescue, hazardous materials response, aircraft rescue firefighting,
10 and emergency medical services to prevent the loss of life, property, and the environment for all
11 Joint Base San Antonio-Fort Sam Houston locations (Joint Base San Antonio-Fort Sam
12 Houston, 2014a).

13 ***Medical Services***

14 The San Antonio Military Health System oversees the healthcare delivery of 230,000 DoD
15 beneficiaries in the San Antonio metropolitan region. Health care services are provided by the
16 SAMCC, which includes a Level 1 trauma center and DoD's largest inpatient hospital, Wilford
17 Hall Ambulatory Surgical Center; 19 primary care clinics; and more than 100 specialty services
18 (Joint Base San Antonio-Fort Sam Houston, 2014b).

19 **Family Support Services**

20 Joint Base San Antonio-Fort Sam Houston offers Families Exceptional Family Life Consultants,
21 Emergency Financial Aid, Employment readiness, Family Life Education, Unit Service
22 Coordinator/information and referral service, Relocation Readiness, Mobilization and
23 Deployment Readiness, Personal and Family readiness, Transition Assistance Program, Survivor
24 Benefit Plan and Outreach Services, Casualty Affairs, and Air Force Aid Society. Joint Base San
25 Antonio-Fort Sam Houston also offers Families Marriage, Family, and individual counseling at
26 the Family Life center, welfare and Recreation Programs, a Commissary, and an Exchange (an
27 Army and Air force exchange service) (Joint Base San Antonio-Fort Sam Houston, 2014c).

28 **Recreation Facilities**

29 Joint Base San Antonio-Fort Sam Houston provides its military community an aquatic center,
30 bowling center, gym, child development center, equestrian center, Family child care center, golf
31 club, two fitness centers (on the Medical Education and Training Campus and Jimmy Brought
32 Fitness Center), Hacienda Recreation Center, the Harlequin Dinner Theatre, Keith A Campbell
33 Memorial Library, Middle School Teen Center, outdoor equipment center, Sam Houston
34 Community Center, and Salado Park (Joint Base San Antonio-Fort Sam Houston, 2014c).

1 **4.28.12.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative the operations at Joint Base San Antonio-Fort Sam Houston
4 would continue to benefit regional economic activity. No additional impacts to housing, public
5 and social services, public schools, public safety, or recreational activities are anticipated.

6 **Alternative 1—Implement Force Reductions**

7 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
8 less than significant impact to socioeconomic resources. The description of impacts to the
9 various components of socioeconomics is presented below.

10 ***Population and Economic Impacts***

11 Alternative 1 would result in the loss of 5,934³⁶ Army positions (3,949 Soldiers and 1,985 Army
12 civilians), each with an average annual income of \$46,760 and \$56,913, respectively. In addition,
13 this alternative would affect an estimated 9,008 Family members (3,311 spouses and 5,697
14 dependent children). The total population of Army employees and their Families directly
15 affected under Alternative 1 is projected to be 14,942.

16 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
17 forecast economic impact value falls outside the historical positive or negative ranges. Table
18 4.28-6 shows the deviation from the historical average that would represent a significant change
19 for each parameter. The last row summarizes the deviation from the historical average for the
20 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
21 by the EIFS model. Based on the EIFS analysis, there would not be significant impacts to sales,
22 income, employment, and population in the ROI under Alternative 1 because the estimated
23 percentage changes are within the historical range.

24 Table 4.28-7 summarizes the predicted impacts to income, employment, and population of the
25 reductions against the 2012 demographic and economic data. Whereas the forecast value
26 provides a percent change from the historical average, the percentages in the following table
27 show the economic impact as a percent of 2012 demographic and economic data. Although not
28 in exact agreement with the EIFS forecast values, these figures show the same significance
29 determinations as the EIFS predictions in the previous table.

³⁶ This number was derived by assuming the loss of 70 percent of Joint Base San Antonio-Fort Sam Houston's Soldiers and 30 percent of the Army civilians.

1 **Table 4.28-6. Economic Impact Forecast System and Rational Threshold Value**
 2 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+7.2	+4.6	+2.6	1.5
Economic contraction significance value	-6.4	-3.9	-3.5	-1.0
Forecast value	-0.5	-0.5	-0.9	-0.5

3 **Table 4.28-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$392,672,500	-6,620 (Direct)	-14,942
		-1,864 (Induced)	
		-8,485 (Total)	
Total 2012 ROI economic estimates	\$87,169,022,000	988,625	2,234,494
Percent of total ROI figures	-0.5	-0.9	-0.7

4 Note: Sales estimates are not consistently available from public sources for all counties in the U.S.;
 5 therefore, the sales data for counties are not presented in this table. The estimated reduction in
 6 total sales from EIFS is described in the paragraphs below.

7 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 8 receipts are likely to occur over a period until 2020. EIFS estimates were analyzed based on total
 9 cumulative force reductions. Because of the maximum potential loss of 5,934 Soldiers and Army
 10 civilians under Alternative 1, EIFS estimates an additional 686 direct contract service jobs would
 11 also be lost. An additional 1,864 induced jobs would be lost because of the reduction in demand
 12 for goods and services within the ROI. The total reduction in employment is estimated to be
 13 8,485, a 0.9 percent reduction of the total employed labor force in the ROI. Income is estimated
 14 to fall by \$392.7 million, a 0.5 percent decrease in income in 2012.

15 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$678 million.
 16 Sales tax receipts to local and state governments would also decrease. The state and average
 17 local sales tax for Texas is 8.15 percent (Tax Foundation, 2014). To estimate sales tax
 18 reductions, information was utilized on the proportion of sales that would be subject to sales
 19 taxes on average across the county. According to the U.S. Economic Census, an estimated 16
 20 percent of economic output or sales would be subject to sales tax (U.S. Economic Census, 2012).
 21 Therefore, with an estimated reduction of \$677.7 million in sales would result in an estimated
 22 decrease in sales tax receipts of \$8.8 million.

23 Of the approximately 2.2 million people (including those residing on Joint Base San Antonio-
 24 Fort Sam Houston) who live within the ROI, 5,934 Army employees and an estimated 9,008
 25 Family members are predicted to no longer reside in the area under Alternative 1, resulting in a

1 population reduction of 0.7 percent. This number likely overstates potential population impacts
2 because some of the people no longer employed by the Army would continue to live and work
3 within the ROI, finding employment in other industry sectors.

4 Joint base trainees and students may have a substantial impact on the local economy through
5 lodging, eating, and shopping expenditures. Additionally, formal graduation ceremonies generate
6 demand for lodging and dining facilities when Family members attend. The impact to Joint Base
7 San Antonio-Fort Sam Houston's training mission(s) cannot be determined until after the Army
8 completes its force structure decisions; therefore, analyzing the impact to those mission(s) is
9 beyond the scope of this document.

10 **Housing**

11 Alternative 1 is expected to result in a decline in population in the ROI of 0.7 percent. While the
12 force reductions may result in a decreased demand for housing on and off the joint base, it is not
13 expected that this would result in significant, adverse impact to the housing sector given the size
14 of the ROI.

15 **Schools**

16 Under Alternative 1, the reduction of 5,934 Army personnel would decrease the number of
17 children by 5,697 in the ROI. It is anticipated that school districts that provide education to Army
18 children on the joint base would be impacted by this action. The schools on Joint Base San
19 Antonio-Fort Sam Houston, as well as school districts in Bexar County and neighboring counties
20 where joint base children attend school would be most affected under Alternative 1. If
21 enrollment in individual schools is significantly affected, schools may need to reduce the number
22 of teachers, administrators, and other staff and potentially close or consolidate with other schools
23 within the same school district if enrollment falls below sustainable levels.

24 The reduction of Soldiers on Joint Base San Antonio-Fort Sam Houston would result in a loss of
25 Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is
26 based on the number of students who are considered "federally connected" and attend district
27 schools. Actual projected dollar amounts cannot be determined at this time due to the variability
28 of appropriated dollars from year to year and the uncertainty of the actual number of affected
29 school-age children for Soldier and Army and civilian Families. School districts in the ROI
30 would likely need fewer teachers and materials as enrollment drops, which would partially offset
31 the reduced Federal Impact Aid. Overall, adverse impacts to schools associated with Alternative
32 1 would be minor to significant depending on the number of military-connected students
33 attending each school.

34 **Public Services**

35 The demand for law enforcement, medical care providers, and fire and emergency service
36 providers on the joint base may decrease if Soldiers, Army civilians, and their Family members,

1 affected under Alternative 1 move off the joint base. Adverse impacts to public services could
2 conceivably occur if personnel cuts were to substantially affect hospitals, military police, and fire
3 and rescue crews on the joint base. These scenarios are not reasonably foreseeable and therefore
4 are not analyzed. Regardless of any drawdown in military or civilian personnel, the Army is
5 committed to meeting health and safety requirements where it is appropriate for them to do so on
6 this Air Force managed joint base. Many of the public services provided on Joint Base San
7 Antonio-Fort Sam Houston are under the authority of the Air Force; these health and safety
8 requirements would continue to be met by the Air Force. Overall, minor impacts to public health
9 and safety would occur under Alternative 1; these impacts are not expected to be significant
10 because the existing service level for the joint base and the ROI would still be available.

11 ***Family Support Services and Recreational Facilities***

12 Family Support Services and recreational facilities would experience reduced demand and use
13 and, subsequently, would require fewer personnel and/or reduced funding. Many of the Family
14 Support Services and all of the recreational facilities provided on Joint Base San Antonio-Fort
15 Sam Houston are under the authority of the Air Force, so measures for meeting those needs
16 would continue to be met by the Air Force. Minor impacts to Family Support Services and
17 recreational facilities are anticipated under Alternative 1.

18 ***Environmental Justice and Protection of Children***

19 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
20 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
21 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
22 and adverse human health or environmental effects of its programs, policies, and activities on
23 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
24 disproportionate adverse impact to minorities, economically disadvantaged populations or
25 children in the ROI. Job losses would be experienced across all income levels and economic
26 sectors and spread geographically throughout the ROI. As shown in Table 4.28-3, minority
27 populations in all of the ROI counties are proportionally smaller than in Texas as a whole, so
28 there would be no disproportionate effect to environmental justice populations.

29 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
30 federal agencies are required to identify and assess environmental health and safety risks that
31 may disproportionately affect children and to ensure that the activities they undertake do not
32 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
33 were to be realized, the Army is committed to implementing required environmental compliance
34 and meeting the health and safety needs of the people associated with the joint base, including
35 children, where it is appropriate for them to do so on this Air Force managed joint base.
36 Therefore, it is not anticipated that Alternative 1 would result in any environmental health and
37 safety risks to children within the ROI. Additionally, this analysis evaluates the effects
38 associated with workforce reductions only, and any subsequent actions on the joint base that may

1 require ground-disturbing activities that have the potential to result in environmental health and
2 safety risks to children, such as demolishing vacant buildings, is beyond the scope of this
3 analysis and could be evaluated in future, separate, site-specific NEPA analysis by Joint Base
4 San Antonio, as appropriate.

5 **4.28.13 Energy Demand and Generation**

6 **4.28.13.1 Affected Environment**

7 The installation's energy needs are currently met by a combination of electric power and natural
8 gas. During the past decade, Congress has enacted major energy bills, and the President has
9 issued Executive Orders that direct federal agencies to address energy efficiency and
10 environmental sustainability. The federal requirements for energy conservation that are most
11 relevant to Joint Base San Antonio-Fort Sam Houston include the Energy Policy Act of 2005,
12 E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*,
13 issued January 2007; Energy Independence and Security Act of 2007; and E.O. 13514, *Federal*
14 *Leadership in Environmental, Energy, and Economic Performance*, issued October 2009. Joint
15 Base San Antonio-Fort Sam Houston is striving to comply with these requirements.

16 **Electricity**

17 The electrical power systems at Joint Base San Antonio-Fort Sam Houston were privatized in
18 September 2000. Electrical power is provided by City Public Service. Power is distributed to
19 various facilities via lines owned by City Public Service and metered at each individual facility.
20 In addition to the electrical power provided by City Public Service, Joint Base San Antonio-Fort
21 Sam Houston has several auxiliary generators to supply power to critical mission facilities during
22 emergencies (U.S. Army, 2001b, as cited by USACE, 2007).

23 **Natural Gas**

24 Natural gas supply at Fort Sam Houston was privatized in September 1999. City Public Service
25 owns and maintains the gas distribution lines throughout the installation. Propane gas is used at
26 Camp Bullis for heating. Storage tanks are located near the facilities that use the propane. The
27 gas is supplied by local vendors (USACE, 2007).

28 **4.28.13.2 Environmental Effects**

29 **No Action Alternative**

30 Minor, adverse impacts are anticipated on energy demand. The continued use of outdated, energy
31 inefficient facilities could hinder Joint Base San Antonio-Fort Sam Houston's requirement to
32 reduce energy consumption. Some older facilities may require renovations to improve energy
33 efficiency to achieve federal mandate requirements.

1 **Alternative 1—Implement Force Reductions**

2 Minor, beneficial impacts to energy demand are anticipated because force reductions would
3 reduce the installation's overall demand for energy. The installation would also be better
4 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
5 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
6 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
7 these activities on energy demand are not analyzed.

8 **4.28.14 Land Use Conflicts and Compatibility**

9 **4.28.14.1 Affected Environment**

10 **Regional Setting**

11 Fort Sam Houston is located in south-central Texas, in the city of San Antonio, approximately
12 2.5 miles northeast of the central downtown area. Joint Base San Antonio-Fort Sam Houston is
13 located within Loop 410, which circles the city center and encloses a densely populated urban
14 environment. The 2,940-acre installation is surrounded by developed property, widely used
15 highways and arterial roadways. The installation roughly comprises the land area enclosed on the
16 south by IH-35, on the west-northwest by the Old Austin Highway and Harry Wurzbach
17 Highway, on the north by Rittiman Road and Holbrook Road, and by IH-35 on the
18 east-southeast.

19 Camp Bullis is located north of San Antonio, in Bexar and Comal counties, Texas, and is a sub-
20 installation to Joint Base San Antonio. It encompasses 27,987 acres approximately 18 miles
21 northwest of Fort Sam Houston. The installation runs approximately 10 miles from north to
22 south and 4 miles from east to west. The surrounding area is primarily rural but has become
23 increasingly urbanized as the San Antonio suburbs have radiated outward to extend closer to
24 Camp Bullis.

25 The Fort Sam Houston mission is focused on medical training and practice, and its activities and
26 facility requirements are primarily characterized as administrative, classroom, hospital and clinic
27 space. Camp Bullis is used as a field training site for medics and medical students. Fort Sam
28 Houston does not have an airfield or warfighting maneuver or training ranges. Camp Bullis
29 provides target ranges and field training areas for the Army, Air Force, Marine Corps, and the
30 Armed Forces reserve units in the San Antonio area, as well as serving as an exercise site for
31 many military units from outside the region.

32 **Land Use on the Installation**

33 There is no room for land expansion at Fort Sam Houston, and additional development is
34 confined within the installation's borders. The Fort Sam Houston master plan layout and the
35 associated land uses are characterized by four mission-related subareas: patient care; medical

1 training; medical and other RDTE; and headquarters and administration. Additionally, housing,
2 recreational, commercial and community facilities are located throughout the installation. Older,
3 more developed areas occur in the southwestern and south-central portions of the installation,
4 and contain most of the headquarters/administrative, housing, community support and training
5 facilities. The Arthur McArthur Field, a long contiguous tract of land, is used as parade grounds
6 and athletic fields. The central core of Fort Sam Houston contains a variety of land uses,
7 including Family housing, troop housing and bachelor officers' quarters, intermingled with
8 HQ/administrative, community support, educational, and smaller recreation facilities. The south-
9 central part of the installation is an industrial area primarily dedicated to logistics, facilities
10 services, vehicle and equipment maintenance, supply distribution and warehousing. The north
11 end of Fort Sam Houston is less densely developed, with Family housing, schools, outdoor
12 recreation and a national cemetery. There are two 18-hole golf courses, picnic and camping areas
13 and a riding stable in this area. Other smaller recreation areas can be found throughout the
14 installation. The easternmost area houses greater than 1 million square feet of SAMMC and
15 support facilities.

16 The Camp Bullis master plan divides the installation into three general areas. The cantonment
17 area (about 600 acres) in the southwest part of the reservation, the impact area (about 6,000
18 acres) in the southeast and the maneuver areas (about 21,400 acres) comprise the bulk of the land
19 area. Each area is used for a variety of functions. The Camp Bullis cantonment area has most of
20 the administrative and support functions and facilities, including offices, warehouses,
21 classrooms, barracks, munitions and explosives storage and water and wastewater treatment
22 systems. The impact area for the firing ranges occupies most of the southeast part of the
23 reservation. Other areas provide a variety of features and facilities supporting different missions
24 and training activities. These include four drop zones used for air missions and several special
25 training areas with constructed obstacles, natural features and facilities to support specific
26 training needs. Tracked vehicle training is performed on trails in the southern, eastern and central
27 portion of the installation.

28 Camp Bullis supports activities of other entities, mostly governmental, that will not impede or
29 inhibit the military mission, on about 80 percent of the land through easements, grants or
30 permits. The San Antonio River Authority and NRCS monitor and maintain two flood control
31 reservoirs on 700 acres (FAA operates radar and air traffic control equipment on leased land
32 north of the cantonment area). Several borrow pits and quarrying operations are dispersed
33 throughout Camp Bullis. One commercial oil and gas license is in effect. Camp Bullis provides
34 recreational opportunities for military and civilian personnel. Soccer, softball and volleyball
35 facilities are available for military personnel. Personnel also have access to about 21,000 acres
36 for deer, dove and quail hunting during state-designated hunting seasons, as well as a
37 sportsman's shooting range. The entire Camp Bullis land area is used for conservation and
38 restoration of natural resources, consistent with the Army's peacetime mission and
39 federal policy.

1 **Surrounding Land Use**

2 Fort Sam Houston lies within the city of San Antonio. The San Antonio Planning Department
3 oversees master planning efforts in the city as well as compliance with existing ordinances. The
4 Alamo Area Council of Governments is a voluntary association of local governments and
5 organizations that provides technical planning assistance and coordination within the region.
6 Although Fort Sam Houston does not fall under the jurisdiction of the city of San Antonio, land
7 use changes on Fort Sam Houston may have impacts to the surrounding community.

8 Land use surrounding Fort Sam Houston is varied and includes single- and multi-Family
9 residential, lodging, commercial business, light industrial, office space, warehouse/distribution,
10 institutional, religious and recreational uses. The southeast border of the installation runs parallel
11 to IH-35, a major thoroughfare that defines a corridor of various land uses along the service
12 roads. The eastern boundary is largely open, with rural land and sporadic houses. Some industrial
13 use is interspersed, but floodplains constrain further development. To the southeast and south,
14 open land along the boundaries and highways is zoned mostly for industry and is being
15 developed as such. The city's John James Park and the Fort Sam Houston National Cemetery
16 (owned and administered by the Veterans Administration) are contiguous with Joint Base San
17 Antonio-Fort Sam Houston on the northwest end of the installation.

18 Camp Bullis is located predominantly within Bexar County. A small amount of land (about
19 2,000 acres) on the north boundary falls within Comal County. Some original rangeland still is
20 found along the northern boundary of Camp Bullis, but most surrounding land is being
21 subdivided and used for suburban development. On the west side, Camp Stanley abuts Camp
22 Bullis. On the southwestern boundary is the 323-acre city of San Antonio Eisenhower Park. Also
23 to the south of the installation are rock quarries and a cemetery. Some commercial and industrial
24 developments are located along the primary highways south of the installation.

25 **4.28.14.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative, no force reductions would take place. Medical training mission
28 activities at Fort Sam Houston and military training activities at Camp Bullis would continue at
29 their current levels. No incompatibilities with land uses within or outside the installation are
30 anticipated. The No Action Alternative is therefore expected to have no impacts to land use.

31 **Alternative 1—Implement Force Reductions**

32 No impacts to land use would occur on Joint Base San Antonio-Fort Sam Houston under
33 Alternative 1. Medical training mission activities at Fort Sam Houston and military training
34 activities at Camp Bullis would continue at similar, though slightly diminished levels from
35 current conditions. No incompatibilities with land uses within or outside the installation
36 are anticipated.

1 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
2 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
3 potential impacts from these activities on land use are not analyzed.

4 Installation management at Joint Base San Antonio-Fort Sam Houston is under the authority of
5 the Air Force, so measures to maintain compliance regarding land use ordinances and regulations
6 would continue to be met by the Air Force. The Army is committed, however, to ensuring that
7 personnel cuts will not result in Army non-compliance with land use ordinances and regulations.

8 **4.28.15 Hazardous Materials and Hazardous Waste**

9 **4.28.15.1 Affected Environment**

10 Activities and maintenance processes at Joint Base San Antonio-Fort Sam Houston require the
11 use of hazardous materials. The most commonly used hazardous materials include aviation and
12 motor fuels, petroleum products, paints, solvents, thinners, adhesives, cleaners, batteries, acids,
13 bases, refrigerants, compressed gases and pesticides. The management and distribution of
14 hazardous materials at Joint Base San Antonio-Fort Sam Houston are accomplished primarily
15 through the Department of Logistics supply channels based on forecast and immediate needs.
16 Other hazardous materials, including pesticides, medical supplies, and fuels are maintained and
17 distributed through alternative channels. DPW performs hazardous material reporting for
18 compliance with the EPA Emergency Planning and Community Right-to-Know Act and other
19 regulations (USACE, 2007).

20 Petroleum fuels and products, as well as waste petroleum products, are stored in various tanks
21 throughout Joint Base San Antonio-Fort Sam Houston. Materials stored include No. 2 diesel fuel,
22 gasoline, jet propellant, motor oil and waste oil.

23 **Hazardous Waste Treatment, Storage and Disposal**

24 Hazardous wastes on the installation are handled, transported and stored in accordance with a
25 HWMP. The plan sets forth procedures to achieve and maintain regulatory compliance regarding
26 material management or administrative responsibilities; turn-in procedures; a hazardous material;
27 inventory; training; a waste analysis plan; a tracking system; and hazardous waste storage,
28 packaging, labeling and shipment requirements. In addition to this plan, SPCC Plans and ISC
29 Plans have been developed and implemented for Joint Base San Antonio-Fort Sam Houston.
30 These plans provide prevention and control measures to minimize the potential for spills of
31 hazardous and toxic chemicals, and establish plans and procedures for controlling and managing
32 sudden releases of petroleum products and other hazardous materials.

33 Joint Base San Antonio-Fort Sam Houston is a RCRA large-quantity hazardous waste generator.
34 In accordance with state and federal waste regulations, hazardous waste is transported offsite for
35 proper disposal within 90 days. No hazardous waste is disposed on either installation. Recycling

1 efforts and procedural changes, including product substitutions, have been implemented where
2 feasible to reduce the need for hazardous waste disposal from installation activities
3 (USACE, 2007).

4 **Hazardous Waste Investigation and Remediation Sites**

5 Contamination of groundwater and soil is tracked and mitigated by the U.S. Air Force. Prior to
6 joint basing taking effect, these actions had been recorded in the Army Environmental Database
7 for Restoration. Four IRP sites on Joint Base San Antonio-Fort Sam Houston are in varying
8 stages of investigation and remediation (USACE, 2007).

9 **Other Hazards**

10 Other hazards present at Joint Base San Antonio-Fort Sam Houston are controlled, managed, and
11 removed through specific programs and plans and include UXO, radioactive materials, LBP,
12 asbestos-containing materials, PCBs, pesticides, and medical waste.

13 **4.28.15.2 Environmental Effects**

14 **No Action Alternative**

15 Minor, adverse impacts are anticipated under the No Action Alternative because there would be
16 continued use and generation of hazardous materials and wastes on Joint Base San Antonio-Fort
17 Sam Houston. The existing types and quantities of hazardous wastes generated on the installation
18 have been accommodated by the existing hazardous waste management system and all materials
19 and waste would continue to be handled accordance with all applicable laws, regulations and
20 plans minimizing potential impacts.

21 **Alternative 1—Implement Force Reductions**

22 Minor, adverse impacts are anticipated as a result of implementing Alternative 1. Remediation
23 activities are not expected to be impacted by Alternative 1. Because of the reduced numbers of
24 people, the potential for spills would be somewhat reduced during training and maintenance
25 activities. Waste collection, storage, and disposal processes would remain mostly unchanged,
26 although the quantities may be reduced. No violation of hazardous waste regulations or the Joint
27 Base San Antonio-Fort Sam Houston hazardous waste permit is anticipated as a result of force
28 reduction. Volumes of generated waste are expected to decline depending on the specific
29 units affected.

30 Environmental compliance at Joint Base San Antonio-Fort Sam Houston is under the authority of
31 the Air Force, so measures to maintain compliance regarding hazardous waste management
32 would continue to be met by the Air Force. The Army is committed, however, to ensuring that
33 personnel cuts will not result in Army non-compliance with regulations governing the handling,
34 management, disposal, and clean up, as appropriate, of hazardous materials and hazardous waste.

1 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
2 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
3 therefore, potential impacts from these activities are not analyzed.

4 **4.28.16 Traffic and Transportation**

5 **4.28.16.1 Affected Environment**

6 **Roadways and Traffic**

7 The Fort Sam Houston installation of Joint Base San Antonio-Fort Sam Houston is located in the
8 city of San Antonio, Texas, and Camp Bullis is north of San Antonio. Loop 410 circles the city
9 center and encloses a densely populated urban environment. Fort Sam Houston is located within
10 Loop 410 to the northeast of the city center. The installation is surrounded by developed
11 property, widely used highways and arterial roadways (USACE, 2007).

12 The affected environment from a highway transportation perspective primarily includes: 1) the
13 major on-installation roads that provide the corridors for movement of vehicles to and from and
14 within subareas of the installation, and 2) arterial roads that provide direct access to and from the
15 installation and the surrounding areas through ACPs (USACE, 2007). Public transportation and
16 other modes including air and freight transportation are addressed as they pertain to Joint Base
17 San Antonio-Fort Sam Houston.

18 Camp Bullis is a separate, non-contiguous facility located approximately 18 miles northwest of
19 Fort Sam Houston within the northern San Antonio metropolitan area. Access is through a
20 single ACP.

21 **Joint Base San Antonio-Fort Sam Houston Transportation and ACPs**

22 Most roadways and intersections throughout Fort Sam Houston were operating well prior to the
23 BRAC influx of personnel. All had sufficient capacity to accept the expanded operations. The
24 primary concerns expressed in the 2007 BRAC analysis pertain to peak hour incoming queues at
25 certain ACPs. The ACPs are key elements of the traffic analysis. They represent 100 percent
26 stop-and-check conditions on entry to the installation and slow exiting from the installation
27 (USACE, 2007).

28 The main concern expressed in the BRAC 2007 study was the BAMC (now SAMMC) area of
29 the installation regarding the morning peak queuing at the ACPs. The SAMMC campus has
30 direct access to IH-35 and Loop 410. This provides convenient access to the major roadway
31 infrastructure on the east side of San Antonio, as well as the downtown area (USACE, 2007).
32 Limiting queues is a safety priority as well as convenience factor. Of greatest concern was the
33 SAMMC/IH-35 ACP queue traffic in the a.m. peak along the access ramp from IH-35
34 (USACE, 2007).

1 In addition to the BRAC-related Walters Bridge and IH-35 roadway improvements identified
2 below, Joint Base San Antonio-Fort Sam Houston initiated and completed a comprehensive ACP
3 upgrade and restructuring. The re-built, state-of-the-art Walters Gate was opened in August
4 2012, with the exception of the Visitor Control Center (Newman, 2012).

5 New access procedures have been developed and implemented as the gates have been upgraded.
6 Full Visitor Control Center implementation at Joint Base San Antonio-Fort Sam Houston is
7 anticipated for completion April 30, 2014 (Fort Sam Houston, 2014b).

8 **Off-Installation Roadways**

9 Off-installation roadways around Fort Sam Houston comprise a well-developed roadway
10 network system composed of all levels of roads. As noted above, the primary focus of the
11 transportation evaluation is the connection between the roadway network and direct access to the
12 installation at ACPs. The off-installation segments of these direct access roads include
13 the following:

- 14 • Walters Street from IH-35 to the ACP
- 15 • Harry Wurzbach to the ACPs at Williams Road and Stanley Road along the northwest
16 installation boundary
- 17 • Wilson Street ACP at the west end of the installation
- 18 • Access road and ramps to the ACP on the IH-35 Service Road along the east installation
19 boundary of the SAMMC subarea at George C. Beach Avenue and a second ACP to this
20 area from Binz-Engleman Road to George C. Beach Road on its south side

21 The primary access to the main area is through Walters Street, which was a four-lane road, two
22 lanes in each direction in 2007. This roadway was the primary concern related to BRAC
23 implementation (USACE, 2007). Walters Street was widened and reconstructed to six lanes from
24 IH-35 to the Fort Sam Houston entrance gate. The project also included a multi-use path for
25 pedestrians and bicyclists with decorative walls and fence rails (Southside Reporter, 2013).

26 **Public Transportation**

27 The city of San Antonio is serviced by VIA, the metropolitan transit system, with bus routes
28 throughout the metropolitan and surrounding areas. Based on their schedules and routes, they do
29 not provide services on the installation itself, but there are numerous routes in the immediate
30 surrounding off-installation areas. Several routes provide access at the Walters and New
31 Braunfels ACPs. The area adjacent to the northern portion of the installation also has select bus
32 routes with full connectivity and coverage for the entire VIA transit network (USACE, 2007).

1 **Air Transportation**

2 Fort Sam Houston is approximately 8 miles from the San Antonio International Airport. San
3 Antonio International Airport provides commercial airline service for the South Texas region.
4 Over 13 airlines service more than 30 non-stop domestic and international destinations.

5 There are also at least two general aviation airports in the area, including Stinton Field that serve
6 San Antonio operators of light aircraft, individuals, and private aviation companies (San
7 Antonio, 2014).

8 **Rail Passenger Transportation**

9 Amtrak's Texas Eagle provides daily passenger service between Chicago–St. Louis–Dallas–San
10 Antonio and Los Angeles (Amtrak, 2014).

11 **Freight Rail and Intermodal Freight Services**

12 San Antonio provides good highway and freight rail access via major intersecting highways,
13 railroads, and intermodal systems. I-10, which runs east to west and stretches from Los Angeles,
14 California, to Jacksonville, Florida, intersects in the city, as does north-south-running IH-35,
15 which starts at the border in Laredo, Texas, and continues to Canada, tracing the North American
16 Free Trade Agreement corridor. The rail system also boasts both east-west and north-south rails
17 (Inbound Logistics, 2012). That means Fort Sam Houston has reasonably good access to major
18 rail carriers transporting military materiel and supplies, as well as highway access for
19 such transportation.

20 **4.28.16.2 Environmental Effects**

21 **No Action Alternative**

22 Under the No Action Alternative, current levels of traffic and attendant congestion would
23 continue. Capacity has recently been increased on key roadways and ACPs to accommodate
24 current levels of personnel. Therefore, the No Action Alternative is anticipated to have a
25 negligible impact on the traffic and transportation network.

26 **Alternative 1—Implement Force Reductions**

27 Alternative 1 is anticipated to have a beneficial impact on traffic and transportation resources. If
28 the full reduction of 5,900 personnel were to be implemented, this would result in a 48 percent
29 reduction in Army personnel, without counting the other tenants of the facility. The beneficial
30 impact would likely be minor, perceptible to tenants but not significant. There does not appear to
31 be a traffic congestion problem that needs to be overcome at the ACPs or on the installation.
32 However, there is traffic congestion in the greater San Antonio area. Army personnel contribute
33 to that traffic, and there would be a lessening of the issue under Alternative 1.

1 **4.28.17 Cumulative Effects**

2 The ROI for the cumulative impacts analysis of Army 2020 realignment at Joint Base San
3 Antonio-Fort Sam Houston includes Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall,
4 Medina, and Wilson counties in Texas.

5 **Reasonably Foreseeable Future Projects on Joint Base San Antonio-Fort Sam**
6 **Houston)**

7 The Army is not aware of any reasonably foreseeable future projects on Joint Base San Antonio-
8 Fort Sam Houston, which would be appropriate for inclusion in the cumulative impacts analysis.

9 **Reasonably Foreseeable Future Projects outside Joint Base San Antonio-Fort**
10 **Sam Houston)**

11 No reasonably foreseeable future projects outside Joint Base San Antonio-Fort Sam Houston
12 were identified by the installation. However, there are other projects and actions that affect
13 regional economic conditions and generally include construction and development activities,
14 infrastructure improvements, and business and government projects and activities. Additionally,
15 larger economies with more job opportunities could absorb some of the displaced Army
16 workforce, lessening adverse effects of force reductions.

17 ***No Action Alternative***

18 There were no future proposed actions within the ROI identified that have the potential to
19 cumulatively add impacts to the No Action Alternative. Current socioeconomic conditions would
20 persist within the ROI, and the No Action Alternative would not contribute to any changes.

21 ***Alternative 1—Implement Force Reductions***

22 With the exception of socioeconomics, there would be no cumulative effects of the foreseeable
23 future actions with Alternative 1. The socioeconomic impact within the ROI, as described in
24 Section 4.28.12.2 with a reduction of 5,934 Soldiers and Army civilians, would be minor and
25 adverse on population, the regional economy, and housing with the potential for significant,
26 adverse impacts to some schools. Joint Base San Antonio is located in the San Antonio, Texas
27 metropolitan area with an ROI population of over 2.1 million. Because of the large employment
28 base and diverse economy in the region, the ROI would be less vulnerable to these force
29 reductions because other industries and considerable economic activity occurs within the ROI.
30 As a result, the region would be able to absorb some of the displaced Army employees,
31 mitigating some of the adverse effects.

32 Joint Base San Antonio-Fort Sam Houston provides medical training for Soldiers, averaging
33 approximately 11,800 students assigned to the joint base at a time. Cumulative actions could
34 include reduced training opportunities because of the force reductions on Joint Base San
35 Antonio-Fort Sam Houston, which would result in adverse impacts to socioeconomic conditions

1 because of reduced temporary population and visitors and the attendant economic activity,
2 spending, and jobs and income it supports.

3 Other construction and development activities on the installation and in the ROI would benefit
4 the regional economy through additional economic activity, jobs, and income in the ROI. Under
5 Alternative 1, the loss of approximately 5,900 Soldiers and Army civilians, in conjunction with
6 other reasonably foreseeable actions, would have a minor, adverse impact on socioeconomic
7 conditions in the ROI. However, cumulative impacts could be significant for specific schools on
8 the installation and in the ROI.

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1 **4.29 USAG Hawaii, Hawai'i**

2 **4.29.1 Introduction**

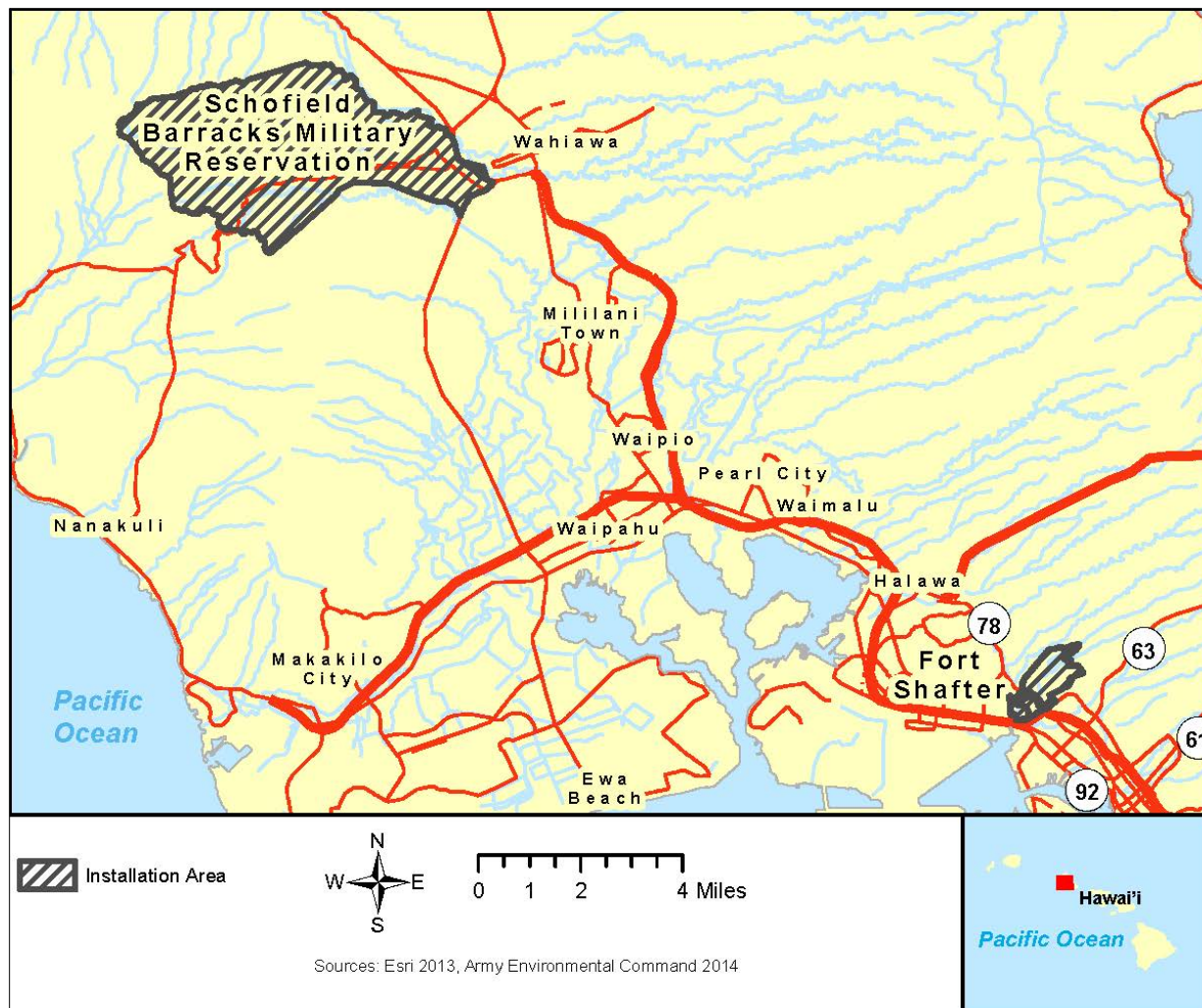
3 USAG Hawaii is located on the islands of O'ahu and Hawai'i. The installation encompasses
4 approximately 22 sub-installations, including Schofield Barracks Military Reservation, Schofield
5 Barracks NCO Academy, Helemano Military Reservation, Wheeler AAF, Fort Shafter, Fort
6 Derussy, MSG Earl Kalani U.S. Army Reserve Command, U.S. Army Command Center, and
7 Tripler Army Medical Center. Schofield Barracks was analyzed in the 2013 PEA. The Pohakuloa
8 Training Area is on another island and has very few permanent party Soldiers and Army civilians
9 and is not included in this analysis; however, it was assessed in the 2013 PEA. A detailed
10 overview of background information on Schofield Barracks can found in Section 4.18.1 of the
11 2013 PEA. While the 2013 PEA was focused on Schofield Barracks, it now appears that Fort
12 Shafter could also experience losses in excess of 1,000. The discussion of both installations is
13 combined in this section because the affected environment for both installations often overlaps.
14 The two installations are about 20 miles apart (Figure 4.29-1).

15 Fort Shafter, which was not analyzed in the 2013 PEA, is located on the south-central coast of
16 O'ahu, and is the site of the U.S. Army Pacific (USARPAC) command headquarters; IMCOM
17 Pacific; USACE, Pacific Ocean Division; USACE, Honolulu District; and the U.S. Army
18 Reserve Command (9th Mission Support Command). The installation covers 590 acres and
19 extends up the interfluves (ridgeline) between Kalihi and Moanalua valleys, as well as onto the
20 coastal plain (known as Shafter Flats) at Mapunapuna, and is approximately 3 miles northwest of
21 downtown Honolulu. Moanalua Freeway is aligned east-west through the installation, dividing it
22 into two areas. North of the freeway is Main Post and south is Shafter Flats. Fort Shafter is also
23 the oldest military base on O'ahu.

24 The primary role of Fort Shafter is to support Army organizations that exercise primary
25 command, control, and management of ground defense of the Pacific theater. These
26 organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th
27 Mission Support Command Army Reserve. Fort Shafter is also home to engineering,
28 communications, military intelligence, and security units, along with elements of USAG Hawaii.

29 USAG Hawaii's Fort Shafter 2013 baseline permanent party population was 7,431. In this SPEA,
30 Alternative 1 assesses a potential population loss of 3,800, including approximately 2,725
31 permanent party Soldiers and 1,061 Army civilians.

32 USAG Hawaii's Schofield Barracks 2011 baseline permanent party population was 18,441. In
33 this SPEA, Alternative 1 assesses a potential population loss of 16,000, including approximately
34 15,394 permanent party Soldiers and 606 Army civilians.



1
2 **Figure 4.29-1. Fort Shafter and Schofield Barracks Military Reservation, Hawai'i**

3 **4.29.2 Valued Environmental Components**

4 For alternatives the Army is considering as part of its 2020 force structure realignment, no
5 significant, adverse environmental impacts are anticipated for USAG Hawaii; however,
6 significant socioeconomic impacts are anticipated under Alternative 1—Implement Force
7 Reductions. Table 4.29-1 summarizes the anticipated impacts to VECs under each alternative.

8

1 **Table 4.29-1. USAG Hawaii Valued Environmental Component Impact Ratings**

Valued Environmental Component	No Action Alternative	Alternative 1—Implement Force Reductions
Air Quality	Negligible to Minor	Beneficial
Airspace	Minor	Beneficial
Cultural Resources	Minor to Significant, but Mitigable	Minor to Significant, but Mitigable
Noise	Less than Significant to Significant, but Mitigable	Beneficial
Soils	Negligible to Significant, but Mitigable	Beneficial
Biological Resources	No Impacts to Significant, but Mitigable	Beneficial
Wetlands	Minor	Minor to Beneficial
Water Resources	Minor	Minor to Beneficial
Facilities	No Impacts to Minor	Minor
Socioeconomics	Beneficial	Significant
Energy Demand and Generation	Negligible	Beneficial
Land Use Conflict and Compatibility	No Impacts	Beneficial
Hazardous Materials and Hazardous Waste	Minor	Minor
Traffic and Transportation	No Impacts	Beneficial

2 **4.29.3 Air Quality**

3 **4.29.3.1 Affected Environment**

4 Two agencies have jurisdiction over the ambient air quality in Hawai'i—EPA and Hawai'i
 5 Department of Health, Clean Air Branch. Hawai'i has established significant ambient air
 6 concentration thresholds and criteria for hazardous air pollutants and has adopted ambient air
 7 quality standards that are in some areas more stringent than the comparable federal standards.
 8 Hawai'i also addresses pollutants, such as hydrogen sulfide, that are not covered by federal
 9 ambient air quality standards (Hawai'i Department of Health, 2011). These are applied under the
 10 permit review process for emission sources that require state or federal air quality permits.

11 All of Hawai'i, including Fort Shafter and Schofield Barracks, is in attainment for all criteria
 12 pollutants. Typical emission sources in Hawai'i include large and small industrial and
 13 commercial operations, vehicles, agricultural activities, and natural emission sources, with the
 14 major air emissions sources including emissions from volcanic activity and geothermal
 15 development. Sources of air emissions in the vicinity of Fort Shafter Flats primarily consist of
 16 commercial and industrial operations, as well as exhaust emissions from vehicles using surface

1 streets and highways (USACE, 2008). However, in general, the air quality in the state of Hawai'i
2 is some of the best in the Nation, primarily due to consistent trade winds, limited emission
3 sources, and the state's small size.

4 **4.29.3.2 Environmental Effects**

5 **No Action Alternative**

6 Under the No Action Alternative, the existing levels of emissions would continue to result in
7 negligible to minor impacts to air quality. Emissions would continue to occur from mobile and
8 stationary sources.

9 **Alternative 1—Implement Force Reductions**

10 Force reductions proposed at Fort Shafter and Schofield Barracks under Alternative 1 would
11 result in long-term, beneficial air quality impacts because of reduced demand for heating/hot
12 water and reduced mobile source emissions from vehicle trips to and from the facility.

13 Short-term, negligible impacts to air quality could result from the relocation of personnel outside
14 of the area due to force reductions. As discussed in Chapter 1, the demolition of existing
15 buildings or placing them in caretaker status as a result of the force reductions is not reasonably
16 foreseeable and not part of the scope of this SPEA; therefore, potential impacts to air quality
17 from these activities are not analyzed.

18 The Army is committed to ensuring that personnel cuts will not result in non-compliance with air
19 quality regulations. Even if the full end-strength reductions were to be realized, the Army would
20 ensure that adequate staffing remains so that the installation would comply with all mandatory
21 environmental regulations.

22 **4.29.4 Airspace**

23 **4.29.4.1 Affected Environment**

24 USAG Hawaii (Schofield Barracks) was analyzed in the 2013 PEA, and the affected
25 environment for airspace, which can be found in Section 4.18.3, remains the same. There is no
26 military airspace above Fort Shafter. The installation lies within the terminal control area of the
27 Honolulu International Airport, meaning that Fort Shafter is in the vicinity (or in this case the
28 flight path) of one of the airport's runways.

29 **4.29.4.2 Environmental Effects**

30 **No Action Alternative**

31 Impacts under the No Action Alternative at USAG Hawaii would remain the same as those
32 discussed in Section 4.18.3.2 of the 2013 PEA, with minor impacts to airspace being anticipated.

1 USAG Hawaii would maintain existing airspace operations and classifications, and no new
2 airspace conflicts are anticipated to occur.

3 **Alternative 1—Implement Force Reductions**

4 Airspace restrictions and classifications around USAG Hawaii are sufficient to meet current
5 airspace requirements, and force reductions would not alter the current airspace use and would
6 not be projected to require additional airspace restrictions. Some adverse impacts could
7 conceivably occur if force reductions were to affect aircraft and airspace management personnel
8 (i.e., air traffic controllers). The Army, however, is committed to safety issues and would
9 maintain staffing levels to meet current airspace requirements. In the event that force reductions
10 do not impact aircraft and airspace management personnel, impacts to airspace would be
11 consistent with the beneficial impacts as discussed in Section 4.18.3.2 of the 2013 PEA due to
12 reduced utilization of Soldiers and support activities, from the reduced potential for airspace
13 conflicts as a result of reduced training activities.

14 **4.29.5 Cultural Resources**

15 **4.29.5.1 Affected Environment**

16 The affected environment for cultural resources at Schofield Barracks has not changed since
17 2013, as described in Section 4.18.4 of the 2013 PEA.

18 **Fort Shafter**

19 The affected environment for Fort Shafter is the installation footprint. Surveys of the area have
20 identified 32 prehistoric and historic archaeological sites, 21 of which have been determined
21 eligible for listing in the National Register of Historic Places (NRHP), as well as 11 rockshelters
22 that are managed as cultural resources (USAG Hawaii, 2009).

23 The installation has completed surveys of all architectural resources constructed prior to 1951
24 (USAEC, 2008). These surveys have identified and evaluated 158 architectural resources. The
25 Palm Circle has been designated an NHL District due to its distinctive architecture and
26 associated landscape that includes rows of royal palms. Outside of this district, 20 architectural
27 resources have been identified as eligible for listing in the NRHP. Currently, there is no proposed
28 development that would impact archaeological sites or NRHP historic buildings.

29 Fort Shafter is located in an area of traditional significance to Native Hawaiian peoples. The area
30 has been used for traditional religious ceremonies and burials (USAEC, 2008) and continues to
31 be important to these communities (USAG Hawaii, 2009).

1 **4.29.5.2 Environmental Effects**

2 **No Action Alternative**

3 Section 4.18.4.2 of the 2013 PEA describes the effects of the No Action Alternative at Schofield
4 Barracks as significant but mitigable. There has not been a change in the affected environment
5 since the publication of the 2013 PEA that would alter impacts to cultural resources. Live-fire
6 training would continue, allowing for the possibility of inadvertent damage to cultural resources.
7 All activities with the potential to affect cultural resources would continue to be monitored and
8 regulated through the use of existing agreements and/or preventative and minimization measures.

9 At Fort Shafter, there would be minor impacts to cultural resources as a result of the No Action
10 Alternative. Cultural resources would continue to be managed in adherence with all applicable
11 federal laws and the ICRMP. The cultural resource management staff at the installation would
12 continue to consult with the SHPO and applicable tribes on the effects of undertakings that may
13 affect cultural resources. Activities with the potential to affect cultural resources would continue
14 to be monitored and regulated through the use of existing agreements and/or preventative and
15 minimization measures. The effects of the No Action Alternative would come from the
16 continuation of undertakings that have the potential to affect archaeological and architectural
17 resources (e.g., training, maintenance of historic buildings, new construction).

18 **Alternative 1—Implement Force Reductions**

19 At Schofield Barracks, Alternative 1 would have a significant but mitigable impact on cultural
20 resources as described in Section 4.18.4.2 of the 2013 PEA. The effects of this alternative are
21 similar to the No Action—the reduction of forces at this installation would not result in a change
22 in the existing conditions. Therefore, if current operations are having a significant but mitigable
23 impact on cultural resources, the potential reduction in forces proposed under Alternative 1
24 would not alter those impacts.

25 At Fort Shafter, Alternative 1 would have a minor, adverse impact on cultural resources. As
26 discussed in Chapter 1, the potential demolition of existing buildings as a result of force
27 reductions is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
28 potential impacts to subsurface archaeological sites and historic structures are not analyzed.
29 Additionally, the Army is committed to ensuring that personnel cuts will not result in non-
30 compliance with cultural resources regulations. If future site-specific analyses indicate that it is
31 necessary to vacate or demolish structures as a result of force reductions, the installations would
32 comply with applicable laws, such as the NHPA, and conduct the necessary analyses and
33 consultation to avoid, minimize, and/or mitigate these effects.

34 The effects of this alternative are considered to be similar to the No Action Alternative—future
35 activities with the potential to effect cultural resources would continue to be monitored and the
36 impacts reduced through preventative and minimization measures. This alternative could result

1 in some beneficial effects; with fewer people to support, there may be a reduction in the number
2 of undertakings with the potential to affect cultural resources.

3 **4.29.6 Noise**

4 **4.29.6.1 Affected Environment**

5 The noise affected environment of the Schofield Barracks remains the same as was discussed in
6 Section 4.18.5.1 of the 2013 PEA.

7 Ambient noise at Fort Shafter is generated from intermittent aircraft flybys from Honolulu
8 International Airport, street traffic (predominantly from Interstate H-1 and Moanalua Freeway),
9 and natural sounds such as those typically heard from wind and birds. Since Fort Shafter's role is
10 to serve administrative and command functions, there are no activities at the installation that
11 generate significant noise levels. The primary source of noise generated within the installation is
12 vehicle traffic (U.S. Army 2008a). Sensitive noise receptors located near the installation include
13 civilian housing and a child development center and playground (USAEC, 2008).

14 Hawai'i has adopted statewide standards related to construction, fixed noise sources, and impulse
15 and non-impulse noise. Each of these noise levels should not be exceeded by more than 10
16 percent of the time within a 20-minute period (U.S. Army, 2008a). In addition, the Army
17 implements a Hawai'i Statewide Operational Noise Management Plan, which provides a
18 methodology for analyzing exposure to noise associated with military operations, provides
19 guidelines for achieving compatibility between the Army and surrounding communities, and
20 creates a structure for receiving and responding to complaints (U.S. Army, 2010). No maneuver
21 exercises or live-fire training take place at Fort Shafter, as these activities take place on ranges
22 located at other Army installations on O'ahu (USAEC, 2008). Intermittent noise resulting from
23 occasional construction or maintenance activities at Fort Shafter is not expected to exceed
24 statewide community noise standards.

25 **4.29.6.2 Environmental Effects**

26 **No Action Alternative**

27 Under the No Action Alternative in the 2013 PEA, as discussed in Section 4.18.5.2, significant
28 but mitigable, impacts to noise were anticipated at Schofield Barracks from continued live-fire
29 and maneuver training and aviation overflights. With no change to the affected environment,
30 impacts under the No Action Alternative on Schofield Barracks would remain the same.

31 Under the No Action Alternative, no significant noise impacts are expected for Fort Shafter. Fort
32 Shafter would remain the headquarters of the U.S. Pacific Command and the home for units
33 presently stationed there. No additional units or Soldiers would be stationed at Fort Shafter, and
34 no force reductions would take place. Fort Shafter would remain primarily an administrative
35 facility and the Soldier population would remain the same. Ongoing and planned cantonment

1 projects would proceed as necessary. Regulatory and administrative measures would continue to
2 be implemented to reduce any noise impacts associated with Army activities.

3 **Alternative 1—Implement Force Reductions**

4 Under force reductions in the 2013 PEA, beneficial impacts to noise were anticipated at
5 Schofield Barracks from a reduction in the frequency of noise generating training events,
6 reducing noise contours. Impacts under Alternative 1 on Schofield Barracks would be similar to
7 those discussed in Section 4.18.5.2 of the 2013 PEA, although noise-generating events would be
8 even further reduced.

9 Under Alternative 1, noise impacts at Fort Shafter would be similar to those described for the No
10 Action Alternative. Force reductions could result in potential reductions in noise from existing
11 conditions. Therefore, impacts from operational noise at the installation resulting from force
12 reductions would range from beneficial to no impacts. Noise sources generated outside the
13 installation are not expected to change as a result of Alternative 1 and would continue to have
14 negligible impacts to sensitive receptors within the installation.

15 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
16 noise ordinances and regulations. Even if the full end-strength reductions were to be realized at
17 USAG Hawaii, the Army would ensure that adequate staffing remains so that Schofield Barracks
18 and Fort Shafter would comply with all mandatory environmental regulations including noise
19 ordinances and regulations.

20 **4.29.7 Soils**

21 **4.29.7.1 Affected Environment**

22 The soils affected environment for Schofield Barracks remains the same as was discussed in
23 Section 4.18.6.1 of the 2013 PEA.

24 Fort Shafter is underlain by Ko'olau basalts and in some areas by the younger Kalihi basalt
25 member of the Honolulu basalts. Most of Shafter Flats is underlain by artificial fill used to fill
26 two large, former fish ponds. The material overlies fine-grained marine sediments and alluvial
27 and coastal deposits. The southwestern portion of Fort Shafter is within the 100 year flood zone
28 of Moanalua Stream and its tributaries; however, the majority of the installation is in uplands out
29 of the flood zone (FEMA, 2014).

30 The predominant upland soils on Fort Shafter are from the Honoliuli, Kawaihapai, Makiki, and
31 Manana soil series. These soils are generally characterized as deep to very deep, well drained,
32 and gently rolling. Manana soils are steep and occur on the northeastern portion of the
33 installation. Areas within the floodplain on Fort Shafter are dominated primarily by fill material.
34 The erodibility of the dominant soils on Fort Shafter is low, thus under normal conditions, they
35 are not expected to erode (NRCS, 2013).

1 **4.29.7.2 Environmental Effects**

2 **No Action Alternative**

3 Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to soils
4 were anticipated on Schofield Barracks from continued training and ongoing construction.

5 Impacts under the No Action Alternative on Schofield Barracks remain the same as those
6 discussed in Section 4.18.6.2 of the 2013 PEA.

7 Under the No Action Alternative, impacts to soils on Fort Shafter are anticipated to be negligible
8 to minor due to ongoing construction activities. Any existing BMPs would be adhered to and the
9 installation would continue to minimize erosion.

10 **Alternative 1—Implement Force Reductions**

11 Under Alternative 1 in the 2013 PEA, beneficial impacts to soils were anticipated on Schofield
12 Barracks from reduced use of training ranges. Impacts under Alternative 1 on Schofield Barracks
13 remain the same as those discussed in Section 4.18.6.2 of the 2013 PEA.

14 Beneficial impacts are anticipated under Alternative 1 on Fort Shafter. As there are no active
15 ranges on the installation, a force reduction would not lead to fewer impacts from these types of
16 activities. However, fewer Soldiers would mean a reduction in the use of roads and unpaved
17 areas, which could reduce the amount of impacts to soils.

18 As discussed in Chapter 1, the potential demolition of existing buildings as a result of force
19 reduction is not reasonably foreseeable and not part of the scope of this SPEA; therefore,
20 potential impacts from these activities on soils are not analyzed.

21 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
22 regulations affecting soils. Even if the full end-strength reductions were to be realized at USAG
23 Hawaii, the Army would ensure that adequate staffing remains so that the installation would
24 comply with all mandatory regulations.

25 **4.29.8 Biological Resources (Vegetation, Wildlife, Threatened and Endangered 26 Species)**

27 **4.29.8.1 Affected Environment**

28 The affected environment of Schofield Barracks, described in Section 4.18.7.1 of the 2013 PEA,
29 provides habitat for a great diversity of flora and fauna species. Schofield Barracks is home to 53
30 rare plant species, 29 special status wildlife species, and 2 rare vegetation communities. The
31 installation also contains large expanses of Biologically Significant Areas. An additional
32 endangered species, the Hawaiian hoary bat (*Lasiurus cinereus semotus*) was recently discovered
33 on Schofield Barracks. Schofield Barracks plans to consult with USFWS with regard to this

1 newly discovered endangered species in accordance with ESA Section 7 (USAG Hawaii, 2014a)
2 by the end of 2014. No other changes have occurred to the affected environment since 2013.

3 The affected environment of Fort Shafter, also located on O’ahu, is similar to that of Schofield
4 Barracks, but has undergone extensive disturbance due to the construction on and operation of
5 the installation. For the most part, native vegetation and habitats are no longer present. Several
6 areas of Fort Shafter are devoid of vegetation such as paved parking lots and equipment storage
7 areas. The vegetated areas of Fort Shafter consist generally of a mixture of landscaped areas and
8 scrub habitat dominated by non-native, weedy species. The majority of the Upper Campus area is
9 maintained as a manicured lawn dominated by invasive grass species including Bermuda grass,
10 with king palms (*Archontopheonix alexandrae*) located around the perimeter. Past disturbances
11 and habitat fragmentation have severely affected the viability of wildlife habitat on Fort Shafter
12 (U.S. Army, 2008a).

13 **4.29.8.2 Environmental Effects**

14 **No Action Alternative**

15 Under the No Action Alternative in the 2013 PEA, significant, but mitigable, impacts to
16 biological resources were anticipated on Schofield Barracks from continued training and ongoing
17 construction. Impacts under the No Action Alternative on Schofield Barracks remain the same as
18 those discussed in Section 4.18.7.2 of the 2013 PEA.

19 Implementation of the No Action Alternative would result in no additional impacts to biological
20 resources and the affected environment would remain in its current highly developed state at
21 Fort Shafter.

22 **Alternative 1—Implement Force Reductions**

23 Under Alternative 1 in the 2013 PEA, beneficial impacts to biological resources were anticipated
24 on Schofield Barracks from reduced use of training ranges by up to 30 percent. Impacts under
25 Alternative 1 on Schofield Barracks remain the same as those discussed in Section 4.18.7.2 of
26 the 2013 PEA. However, with greater reductions of soldiers under Alternative 1, training would
27 be reduced further and possibly increase beneficial impacts to biological resources.

28 The implementation of Alternative 1 would result in no impacts to biological resources including
29 vegetation, wildlife, or threatened and endangered species on Fort Shafter due to its high
30 development and minimal vegetation or wildlife.

31 The Army is committed to ensuring that personnel cuts will not result in non-compliance with
32 natural resources regulations. Even if the full end-strength reductions were to be realized at
33 USAG Hawaii, the Army would ensure that adequate staffing remains so that the installation
34 would comply with all mandatory environmental regulations.

1 **4.29.9 Wetlands**

2 **4.29.9.1 Affected Environment**

3 The wetlands affected environment of Schofield Barracks remains the same as was discussed in
 4 Section 4.18.8.1 of the 2013 PEA.

5 A review of NWI maps identified approximately 10 acres of wetlands on Fort Shafter (USFWS,
 6 2010). NWI mapping is an educated delineation based upon interpreting USGS topographic data,
 7 the USGS National Hydrography Dataset, NRCS soil data, and aerial imagery. No formal
 8 wetland delineation of the installation was performed.

9 The majority of the wetlands identified through NWI were palustrine forested wetlands and
 10 riverine wetlands; however, palustrine scrub-shrub, palustrine emergent, and estuarine wetlands
 11 were also identified (USFWS, 2010). Table 4.29-2 identifies the acres of each wetland type on
 12 Fort Shafter.

13 **Table 4.29-2. Acres of Wetland Types on Fort Shafter**

Wetland Type	Acres
Estuarine deepwater	0.05
Estuarine wetland	0.22
Palustrine forested	2.33
Palustrine scrub-shrub	1.64
Palustrine emergent	1.72
Riverine tidal	0.64
Riverine lower perennial	3.40
Total acres	10

14 Source: USFWS (2010)

15 **4.29.9.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative, the 2013 PEA concluded that there would be minor, adverse
 18 impacts to wetlands on Schofield Barracks from continued sedimentation, training and ongoing
 19 construction; this impact has not changed.

20 Minor, adverse impacts to wetlands on Fort Shafter are anticipated under the No Action
 21 Alternative. Impacts to wetlands from any current projects under construction would have
 22 already been assessed and, if required, been properly permitted and mitigated. Current
 23 management of wetlands would continue under the No Action Alternative. Current management

1 of recreational facilities, such as golf courses, would also continue under the No Action
2 Alternative which could contribute to pollutants entering adjacent wetlands and rivers.

3 **Alternative 1—Implement Force Reductions**

4 The 2013 PEA concluded that there would be minor impacts to wetlands on Schofield Barracks
5 under Alternative 1; no new impacts from further force reduction analysis are anticipated.

6 Beneficial impacts to wetlands on Fort Shafter as a result of the implementation of Alternative 1
7 are anticipated. As there are no active ranges on the installation, a force reduction would not lead
8 to fewer impacts from these types of activities. Adverse impacts to wetlands could conceivably
9 occur if force reductions decreased environmental staffing levels to a point where environmental
10 compliance could not be properly implemented. The Army is committed, however, to ensuring
11 that personnel cuts will not result in non-compliance with wetland regulations. Even if the full
12 end-strength reductions were to be realized at USAG Hawaii, the Army would ensure that
13 adequate staffing remains so that mandated environmental requirements would continue to be
14 met as a result of the Proposed Action.

15 **4.29.10 Water Resources**

16 **4.29.10.1 Affected Environment**

17 The affected environment for water resources on USAG Hawaii Schofield Barracks remains the
18 same as that described in Section 4.18.9.1 of the 2013 PEA. There are no changes to surface
19 water and watersheds, water supply, wastewater, and stormwater resources.

20 **Surface Water/Watersheds**

21 The surface waters of Fort Shafter are within the Moanalua watershed. The Moanalua Stream
22 borders the southwestern edge of the installation close to the Shafter Flats area. Kahauiki Stream
23 flows southwest from its headwaters in the Ko'olau Mountains through the installation until its
24 confluence with Moanalua Stream outside the installation borders. The flow regime of the
25 Kahauiki Stream begins as intermittent in the upper reaches and transitions to perennial before
26 crossing into the installation (U.S. Army, 2008a). It receives stormwater runoff and the lower
27 reaches are tidally influenced. Issues associated with dissolved oxygen, pH, turbidity, total
28 suspended solids, and ammonia can affect water quality in Kahauiki Stream (USACE, 2011).
29 The southeastern portion of installation drains to Kalihi Stream which is located south of the
30 installation borders. The Moanalua Stream, a Class 3 perennial stream, and Kalihi Stream are
31 listed as impaired for total nitrogen, turbidity, and trash (Hawai'i Department of Health, 2013).

32 **Groundwater**

33 The Moanalua aquifer is the main groundwater source providing water-bearing layers at 120 to
34 250 feet below Fort Shafter (USAEC, 2008). Recharge is provided by infiltration and stormwater
35 runoff. In addition, an alluvial caprock aquifer is located above the Moanalua aquifer and is

1 several to 25 feet below the surface (U.S. Army, 2006b; USAEC, 2008). In the aquifers, depths
2 to groundwater have declined slightly due to regional water withdrawals (U.S. Army, 2006a).
3 Recharge is provided by infiltration, stormwater runoff, and seepage from the main aquifer (U.S.
4 Army, 2006b). Two water supply wells close to Kahauiki Stream pump water from depths of
5 279 feet and 330 feet (USAEC, 2008). Groundwater in the Fort Shafter Flats area of the
6 installation is brackish and not suitable for water supply (USACE, 2011).

7 **Water Supply**

8 The water supply and distribution system on Fort Shafter is owned and operated by the
9 installation. Water for Fort Shafter is supplied by two 12-inch diameter groundwater wells with a
10 withdrawal capacity of 3.3 mgd (USAEC, 2008; U.S. Army, 2013a). Storage reservoirs in upper,
11 middle, lower service zones hold raw water until movement into the distribution system using
12 pumps. The water is treated with chlorine and fluoride in the supply system and distributed.
13 Demand for water in Fort Shafter area has been increasing and it has been estimated that the
14 existing wells could produce approximately 18 mgd (USAEC, 2008). In addition to the
15 groundwater supply wells, Fort Shafter's water supply system is connected to the city and county
16 of Honolulu's system for potential emergency water supply (U.S. Army, 2013a).

17 **Wastewater**

18 The wastewater system on Fort Shafter is privatized and operated by Aqua Engineers (USAG
19 Hawaii, 2009). The Waste Water Lift Station on Fort Shafter Flats includes multiple pumps with
20 a full capacity of 9.82 mgd. In the mid-2000s the average wastewater flows were 1.7 mgd with
21 peak flows of 7.7 mgd (USAEC, 2008). Wastewater treatment takes place at the Sand Island
22 Treatment Plant operated by the city and county of Honolulu (U.S. Army, 2008b, as cited by
23 USAEC, 2008).

24 **Stormwater**

25 The stormwater collection and distribution system on Fort Shafter consists of storm drains,
26 manholes, pipes, trenches, swales, culverts, and catch basins. The system collects the stormwater
27 runoff, carrying nutrients and sediment, and discharges it to the Kahauiki Stream (USAEC,
28 2008). Parts of the land on the southern border of the installation drain as surface runoff to the
29 Kalihi Stream which eventually drains to the Ke'ehi Lagoon to the south.

30 **Floodplains**

31 E.O. 11988, *Floodplain Management*, requires federal agencies to avoid floodplain development
32 and any adverse impacts from the use or modification of floodplains when there is a feasible
33 alternative. Specifically, Section 1 of E.O. 11988 states that an agency is required "to reduce the
34 risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to
35 restore and preserve the natural and beneficial values served by floodplains in carrying out its
36 responsibilities." The 100-year floodplain indicates areas where the flood has a 1 percent chance

1 of being equaled or exceeded in any year. The 500-year floodplain indicates areas where the
2 flood has a 0.2 percent chance of being equaled or exceeded in any year. According to FEMA
3 floodplain maps, portions of the installation include 100-year and 500-year floodplain areas.
4 Specific areas of flooding include the Shafter Flats area in the south and areas adjacent to the
5 Moanalua Stream and Kahauiki Stream (FEMA, 2011). Flash flooding is possible in some of
6 these areas. Flooding associated with Kahauiki Stream can be affected by high tides and storm
7 surges (USACE, 2011).

8 **4.29.10.2 Environmental Effects**

9 **No Action Alternative**

10 In the 2013 PEA, minor, adverse impacts to water resources on Schofield Barracks were
11 anticipated from the No Action Alternative due to the disturbance and pollution of surface waters
12 and groundwater from stormwater runoff, erosion, and continuing training activities. These
13 minor, adverse impacts to water resources under the No Action Alternative are not expected to
14 change for this SPEA.

15 Minor, adverse impacts to water resources on Fort Shafter would continue under the No Action
16 Alternative due to continuing surface water quality impairments. Fort Shafter would continue to
17 strive to meet federal and state water quality criteria, drinking water standards, and floodplain
18 management requirements. The installation would continue to comply with all federal and state
19 regulations and guidelines concerning wastewater, stormwater management, and floodplains.
20 Current water resources management and compliance activities would continue to occur under
21 this alternative.

22 **Alternative 1—Implement Force Reductions**

23 Minor impacts to water resources were anticipated from implementation of force reductions in
24 the 2013 PEA because of disturbance, stormwater effects, erosion, and pollution from demolition
25 of older facilities, ongoing construction projects, and continuing training activities on Schofield
26 Barracks. Adverse water resources impacts could conceivably occur if personnel cuts prevented
27 environmental compliance from being implemented. The Army is committed to ensuring that
28 personnel cuts will not result in non-compliance with water quality regulations. Even if the full
29 end-strength reductions were to be realized at Schofield Barracks, the Army would ensure that
30 adequate staffing remains so that mandated environmental requirements would continue to be
31 met and implemented. Increased force reductions under Alternative 1 would continue to have the
32 same minor impacts to surface waters, groundwater, water supplies, wastewater, and stormwater,
33 although some impacts could be reduced as training decreases.

34 Beneficial impacts to water resources on Fort Shafter are anticipated as a result of implementing
35 Alternative 1. A force reduction would decrease demand for potable water and would reduce
36 groundwater withdrawals. Demand for wastewater treatment would also decrease allowing

1 additional capacity for other users. Adverse water resources impacts could conceivably occur if
2 personnel cuts prevented environmental compliance from being implemented. The Army is
3 committed to ensuring that personnel cuts will not result in Army non-compliance with water
4 quality regulations. Even if the full end-strength reductions were to be realized at Fort Shafter,
5 the Army would ensure that adequate staffing remains so that mandated environmental
6 requirements would continue to be met and implemented. Force reduction at Fort Shafter is not
7 anticipated to cause violations of federal and state water quality regulations and
8 discharge permits.

9 **4.29.11 Facilities**

10 **4.29.11.1 Affected Environment**

11 The facilities affected environment of Schofield Barracks remains the same as described in
12 Section 4.18.10.1 of the 2013 PEA.

13 Fort Shafter is a 590-acre installation and the site of the USARPAC headquarters and USACE,
14 Pacific Ocean Division. The installation has principally administrative and residential support
15 facilities. Shafter Flats, which is the coastal plain area of the installation, has the following
16 facilities: industrial, maintenance, classroom, parking, and Family housing (USAEC, 2008).

17 **4.29.11.2 Environmental Effects**

18 **No Action Alternative**

19 Under the No Action Alternative, the 2013 PEA concluded that there would be minor impacts to
20 facilities on Schofield Barracks because USAG Hawaii currently has adequate facilities available
21 to support its Soldiers, Families, and mission.

22 No impacts to Fort Shafter are anticipated under the No Action Alternative. Fort Shafter would
23 continue to use its existing facilities to support its tenants and mission.

24 **Alternative 1—Implement Force Reductions**

25 The analysis of force reductions in the 2013 PEA concluded that beneficial impacts to facilities
26 would occur at Schofield Barracks. Under Alternative 1, implementation of the proposed further
27 force reductions would result in overall minor, adverse impacts. Impacts would occur from the
28 fact that future, programmed construction or expansion projects may not occur or could be
29 downscoped; moving occupants of older, underutilized, or excess facilities into newer facilities
30 may require modifications to existing facilities; and a greater number of buildings on the
31 installation may become vacant or underutilized due to reduced requirements for facilities, which
32 would have a negative impact on overall space utilization. Some beneficial impacts are also
33 expected as a result of force reductions such as reduced demands for utilities and reduced
34 demands for training facilities and support services. Force reductions would also provide

1 opportunities to reduce reliance on select outdated facilities. Some facilities could be re-purposed
2 to reduce crowding or support other units.

3 Minor impacts to facilities at Fort Shafter are anticipated under Alternative 1. Force reductions
4 associated with Alternative 1 would reduce requirements for facilities and affect space utilization
5 across the installation. Construction or major expansion projects which had been programmed in
6 the future may not occur or could be downscoped. Occupants of older, underutilized, or excess
7 facilities may be moved to newer facilities; in some cases this could require modification of
8 existing facilities. As discussed in Chapter 1, the demolition of existing buildings or placing
9 them in caretaker status as a result of the reduction in forces is not reasonably foreseeable and
10 not part of the scope of this SPEA; therefore, potential impacts from these activities are not
11 analyzed.

12 **4.29.12 Socioeconomics**

13 **4.29.12.1 Affected Environment**

14 Schofield Barracks, and designated training areas (South Range, East Range, Kahuku Training
15 Area, and Kawaihoa Training Area) are located in the central part of the island of O’ahu, near to
16 the town of Wahiawa, while Fort Shafter is located in the southern part of the island near the
17 town of Aiea. The ROI for both Schofield Barracks and Fort Shafter consists of the city and
18 county of Honolulu and covers the entire island of O’ahu in Hawai’i. The city and county of
19 Honolulu is further divided into seven Census County Divisions, including Ewa, Honolulu,
20 Koolauloa, Koolaupoko, Wahiawa, Waialua, and Waianae. Kahuku Training Area is located
21 within the Koolauloa Census County Division; Dillingham Military Reservation resides within
22 the Waialua Census County Division; and Schofield Barracks resides within the Wahiawa
23 Census County Divisions. Fort Shafter is located in the Honolulu Census County Division. The
24 ROI includes areas in which the majority of the installation’s Soldiers, Army civilians, and
25 contractor personnel and their Families reside. This section provides a summary of demographic
26 and economic characteristics within the ROI.

27 Because of the coincident ROIs for Fort Shafter and Schofield Barracks and their administration
28 under the command of USAG Hawaii, a combined EIFS analysis was deemed the most
29 appropriate. Since Schofield Barracks was assessed in the 2013 PEA, it carries a baseline
30 population from FY 2011. Fort Shafter was not previously assessed and therefore has a FY 2013
31 baseline population. To present a comprehensive analysis on the potential impacts for the ROI,
32 Schofield Barracks baseline data were adjusted to FY 2013 numbers, in alignment with Fort
33 Shafter baseline data, to enable a single, combined analysis of the potential reductions for
34 Schofield Barracks and Fort Shafter. The FY 2013 population information shown below for
35 Schofield Barracks varies from the FY 2011 data shown in Tables 3.3-1 and 3.3-2 by
36 –531 permanent party Soldiers, –372 Army civilians, and –903 persons total.

1 **Population and Demographics**

2 Using 2013 as a baseline, Schofield Barracks has a total working population of 23,717 consisting
 3 of active component Soldiers and Army civilians, students and trainees, other military services,
 4 civilians, and contractors. Of the total working population, 17,538 were permanent party Soldiers
 5 and Army civilians. The population that lives on Schofield Barracks consists of 11,806 Soldiers
 6 and their 25,993 Family members, for a total on-installation resident population of 37,799. The
 7 portion of the Soldiers and Army civilians living off the installation is estimated to be 14,433 and
 8 consists of Soldier and Army civilians, and their Families. Additionally, there are 113 students
 9 and trainees associated with the installation.

10 Using 2013 as a baseline, Fort Shafter has a total working population of 11,107 consisting of
 11 active component Soldiers and Army civilians, students and trainees, other military services,
 12 civilians, and contractors. Of the total working population, 7,431 were permanent party Soldiers
 13 and Army civilians. The population that lives on Fort Shafter consists of 2,110 Soldiers and their
 14 3,203 Family members, for a total on-installation resident population of 5,313. The portion of the
 15 Soldiers and Army civilians living off the installation is estimated to be 13,398 and consists of
 16 Soldiers and Army civilians, and their Families. Additionally, there are 75 students and trainees
 17 associated with the installation. The total working population at both Schofield and Shafter is
 18 34,824, consisting of 24,969 permanent party Soldiers and Army civilians.

19 In 2012, the population of the ROI was 974,990, which represented a 2.3 percent increase in
 20 population from 2010 (Table 4.29-3). The racial and ethnic composition of the ROI is presented
 21 in Table 4.29-4 (U.S. Census Bureau, 2012a).

22 **Table 4.29-3. Population and Demographics, 2012**

Region of Influence Counties	Population	Population Change 2010–2012 (percent)
Honolulu County, Hawai'i	974,990	+2.3

23 Source U.S. Census Bureau (2012a)

1 **Table 4.29-4. Racial and Ethnic Composition, 2012**

State and Region of Influence Counties	White ^a (percent)	African American (percent)	Native American (percent)	Native Hawaiian and Other Pacific Islander (percent)	Asian (percent)	Two or More Races (percent)	Hispanic (percent)	White Alone, Not Hispanic or Latino (percent)
State of Hawai'i	26.1	2.1	0.4	38.3	23.0	9.5	10.1	22.8
Honolulu County, Hawai'i	22.4	2.8	0.3	43.3	21.6	8.8	9.4	19.4

2 Source: U.S. Census Bureau (2012a)

3 ^a Includes those who identify themselves as non-Hispanic and Hispanic White.

4 **Employment and Income**

5 In 2012, the total employed labor force in the ROI was 629,391, which was a 15.2 percent
 6 increase from 2000 (Table 4.29-5). Employment, median home value, household income, and
 7 population living below the poverty level are presented in Table 4.29-5 (U.S. Census, 2012b).

8 **Table 4.29-5. Employment and Income, 2012**

State and Region of Influence Counties	Employed Labor Force (number)	Employment 2000-2012 (percent)	Median Home Value (dollars)	Median Household Income (dollars)	Persons Below Poverty Level (percent)
State of Hawai'i	681,504	+18.1	517,000	79,595	7.6
Honolulu County, Hawai'i	629,391	+15.2	557,800	84,638	6.7

9 Source: U.S. Census Bureau (2012b)

10 Information regarding the workforce by industry for Honolulu County was obtained from the
 11 U.S. Census Bureau. Information presented below is for the employed labor force.

12 ***Honolulu County, Hawai'i***

13 According to the U.S. Census Bureau, the educational services, and health care and social
 14 assistance sector accounts for the greatest share of total workforce in Honolulu County (22
 15 percent). Arts, entertainment, recreation, accommodation, and food services sector is the second
 16 largest employment sector (14 percent), followed by retail trade (11 percent). The Armed Forces
 17 account for 5 percent of the county's workforce. The remaining 10 categories employ 53 percent
 18 of the workforce.

1 Major employers in Honolulu County include Altres Medical, Kapiolani Medical Center, Kyo-
2 Ya Co, Ltd., DoD, and Navy (InfoGroup, 2014).

3 **Housing**

4 As described in the 2013 PEA, Schofield Barracks can house approximately 40 percent of the
5 permanent Soldier population, with Family members, on USAG Hawaii assigned to the
6 installations. There are 7,254 homes for permanent military Family housing on USAG Hawaii
7 installations that are managed through an RCI partnership that has been in place since 2005. The
8 Privatized Housing is managed by Island Palm Communities. The total permanent military
9 Family housing for Schofield Barracks and Fort Shafter are 2,861 and 276, respectively (Andres,
10 2014). Occupancy for installation Family housing averages 99 percent annually and the waiting
11 list exceeds 1,000 service members (U.S. Army, 2013b).

12 Unaccompanied personnel housing on USAG Hawaii installations consist of 6,720 spaces in
13 60 buildings located on 5 installations. Overall, the occupancy rate without deployments is
14 95 percent for the unaccompanied personnel housing. Ninety-five percent of unaccompanied
15 Soldiers on USAG Hawaii, and those enlisted Soldiers, grade E-5 and below, are housed in
16 barracks on the installations in unaccompanied housing. Single Soldiers who are grade E-6 and
17 above are authorized to reside off the installations (U.S. Army, 2013b).

18 Off-installation housing consists of high rise condominiums, multi-family dwellings, duplexes,
19 and single homes. While an adequate supply of one- and two-bedroom apartments and
20 condominiums is available in the local economy, there is a shortfall of affordable three-, four-,
21 and five-bedroom homes (U.S. Army, 2013b).

22 **Schools**

23 As described in the 2013 PEA, Hawai'i is made up of one school district, which makes the island
24 1 of the 10 largest school districts in the United States with 170,000 students (U.S. Army,
25 2013b). A total of 2,380 students live on Fort Shafter, and 8,619 students live on Schofield
26 Barracks (Nakasone, 2014). Four schools are located on Schofield Barracks with the following
27 enrollments: Hale Kula Elementary (1,000), Solomon Elementary (1,000), Wheeler Elementary
28 (675), and Wheeler Middle (900). One school on Fort Shafter, Shafter Elementary has an
29 enrollment of 469 students (Nakasone, 2014). The classroom sizes are large for all installation
30 schools, so some students have to be transported to neighboring schools. USAG Hawaii is also
31 beginning to address other issues related to schools on the installations, including lack of funding
32 for school transportation, overcrowded CYSS facilities affecting extracurricular activities, and
33 the possibility of a new school on the installation.

1 **Public Health and Safety**

2 ***Police Services***

3 The USAG Hawaii DES oversees police operations, physical security, access control, and
4 wildland fire and emergency services at Schofield Barracks and at Fort Shafter. The city and
5 county of Honolulu Police Department also provide law enforcement services since there is
6 concurrent jurisdiction on all USAG Hawaii installations. However, the majority of law
7 enforcement activities on the installations are provided by the USAG Hawaii DES.

8 ***Fire and Emergency Services***

9 The Federal Fire Department (U.S. Navy) manages the installations' structural fire programs.
10 The Federal Fire Department responds to emergencies involving structures, facilities,
11 transportation equipment, hazardous materials, and natural and man-made disasters. It also
12 directs fire prevention activities and conducts public education programs. The Federal Fire
13 Department has mutual aid agreements with the city and county of Honolulu.

14 ***Medical Facilities***

15 On-installation medical services are administered at installation clinics. These facilities service
16 all permanent active component personnel and their Service members, as well as retirees and
17 their Family members, within a 20-mile radius of the installations. The Schofield Barracks
18 Health Clinic functions as an outpatient treatment facility only. Acute care, specialty services,
19 and long-term medical needs for military Families on O'ahu are provided by the Tripler Army
20 Medical Center next to Fort Shafter. Other medical services include Embedded Behavioral
21 Health units and Soldier Center Medical Homes on Schofield Barracks and at Wheeler AAF.
22 Embedded Behavioral Health provides multidisciplinary behavioral health care to Soldiers in
23 close proximity to their unit's work area and in close coordination with unit leaders. Soldier
24 Center Medical Homes provide integrated medical care at or near the Soldier's brigade. There
25 are plans for a dental clinic at Fort Shafter. Off of the installation, the 18th MEDCOM operates a
26 Patient Center Medical Home for DoD service members and Families only.

27 ***Family Support Services***

28 Fort Shafter-Schofield Barracks FMWR assists Soldiers and their Families with programs that
29 include child development centers, child and youth services, the Family child care program,
30 Relocation Readiness Program, tax centers at Schofield Barracks and Fort Shafter, Exceptional
31 Family Member Program, Family Support, Transition Assistance Program, and Family advocacy
32 (U.S. Army FMWR, 2014).

1 **Recreation Facilities**

2 Fort Shafter provides its military community, Families, and civilians with the Walter J. Nagorski
3 Golf Course (9 holes), a library, a bowling alley, an outdoor recreation center, and a
4 fitness center.

5 Schofield Barracks provides its military community, Families, and civilians with the SGT Yano
6 Library, Army Hawaii Bowling Center, a health and fitness center, Richardson Pool, an auto
7 shop and storage, an arts and crafts center, and a Family and FMWR pet kennel (U.S. Army
8 FMWR, 2014).

9 **4.29.12.2 Environmental Effects**

10 **No Action Alternative**

11 The operations at Schofield Barracks and Fort Shafter would continue to benefit regional
12 economic activity. No additional impacts to housing, public and social services, public schools,
13 public safety, or recreational activities are anticipated.

14 **Alternative 1—Implement Force Reductions**

15 Analysis by the EIFS model determined that implementation of Alternative 1 would result in a
16 significant impact to socioeconomic resources. The description of impacts to the various
17 components of socioeconomics is presented below.

18 ***Population and Economic Impacts***

19 Alternative 1 would result in the loss of 19,786³⁷ Army positions at USAG Hawaii (18,119
20 Soldiers and 1,667 Army civilians), each with an average annual income of \$55,374 and
21 \$63,980, respectively. Approximately 16,000 of the Soldier and Army civilian losses would be
22 associated with Schofield Barracks and the remainder would be associated with Fort Shafter. In
23 addition, this alternative would affect an estimated 30,035 Family members (11,041 spouses and
24 18,995 children). The total population of Army employees and their Family members directly
25 affected under Alternative 1 is projected to be 49,821.

26 In accordance with the EIFS analysis, a significant impact is defined as a situation when the
27 forecasted economic impact value falls outside the historical positive or negative ranges. Table
28 4.29-6 shows the deviation from the historical average that would represent a significant change
29 for each parameter. The last row summarizes the deviation from the historical average for the

³⁷ This number was derived by assuming the loss of 70 percent of Fort Shafter's Soldiers, two BCTs from Schofield Barracks, 60 percent of Schofield Barracks' non-BCT Soldiers, and 30 percent of USAG Hawaii's (Schofield Barracks and Fort Shafter) Army civilians to arrive at 19,786. For Schofield Barracks, the 2013 PEA assumed the loss of one BCT, 30 percent of non-BCT Soldiers, and 15 percent of the Army civilians to arrive at 8,000. Fort Shafter was not assessed in the 2013 PEA.

1 estimated demographic and economic impacts under Alternative 1 (forecast value) as estimated
 2 by the EIFS model. Based on the EIFS analysis, changes in employment and population in the
 3 ROI under Alternative 1 fall outside the historical range and are categorized as a significant
 4 impact. However, there would not be a significant impact to sales and income because the
 5 estimated percentage changes are within the historical range, although the decline in income
 6 approaches the significance threshold.

7 **Table 4.29-6. Economic Impact Forecast System and Rational Threshold Value**
 8 **Summary**

Economic Impact—Significance Thresholds for the ROI	Sales (percent)	Income (percent)	Employment (percent)	Population (percent)
Economic growth significance value	+5.6	+4.4	+3.6	+3.5
Economic contraction significance value	-4.1	-2.8	-2.3	-0.9
Forecast value	-2.4	-2.6	-5.5	-5.0

9 Table 4.29-7 summarizes the predicted impacts to income, employment, and population of the
 10 reductions against the 2012 demographic and economic data. Whereas the forecast value
 11 provides a percent change from the historical average, the percentages in the following table
 12 show the economic impact as a percent of 2012 demographic and economic data. Although not
 13 in exact agreement with the EIFS forecast values, these figures show the same significance
 14 determinations as the EIFS predictions in the previous table.

15 **Table 4.29-7. Summary of Predicted Economic Impacts under Alternative 1**

Region of Influence Impact	Income	Employment	Population
Estimated economic impacts	-\$1,352,402,000	-22,839 (Direct)	-49,821
		-3,936 (Induced)	
		-26,776 (Total)	
Total 2012 ROI economics estimates	\$114,113,630,000	629,391	974,990
Percent of total ROI figures	-1.2	-4.3	-5.1

16 Note: Sales estimates are not consistently available from public sources for all counties in the U.S.;
 17 therefore, the sales data for counties are not presented in this table. The estimated reduction in
 18 total sales from EIFS is described in the paragraphs below.

19 With a reduction in the population in the ROI, losses in sales, income, employment, and tax
 20 receipts would occur over a period until 2020. EIFS estimates were analyzed based on total
 21 cumulative force reductions. Because of the maximum potential loss of 19,786 Soldiers and
 22 Army civilians under Alternative 1, EIFS estimates an additional 3,053 direct contract service
 23 jobs would also be lost. An additional 3,936 induced jobs would be lost due to the reduction in
 24 demand for goods and services within the ROI. The total reduction in employment is estimated
 25 to be 26,776, a 4.3 percent reduction of the total employed labor force in the ROI of 629,391.

1 Income is estimated to reduce by \$1.4 billion, a 1.2 percent decrease in income in the ROI
2 in 2012.

3 The total reduction in sales under Alternative 1 within the ROI is estimated to be \$1.3 billion.
4 There would also be a loss in sales tax receipts to local and state governments. The average state
5 and local sales tax rate for Hawai'i is 4.4 percent (Tax Foundation, 2014). To estimate sales tax
6 reductions, information was utilized on the proportion of sales that would be subject to sales
7 taxes on average across the county. According to the U.S. Economic Census, an estimated 16
8 percent of sales would be subject to sales tax (U.S. Economic Census, 2012). This percentage
9 and applicable tax rate was applied to the estimated reduction of \$1.3 billion, resulting in an
10 estimated sales tax receipts decrease of \$9.2 million under Alternative 1.

11 Of the 974,990 people (including those residing on Fort Shafter and Schofield Barracks) who
12 live within the ROI, 19,786 military employees and their estimated 30,035 Family members are
13 predicted to no longer reside in the area under Alternative 1, resulting in a significant population
14 reduction of 5.1 percent. This number likely overstates potential population impacts because
15 some of the people no longer employed by the Army would continue to live and work within the
16 ROI, finding employment in other industry sectors.

17 **Housing**

18 The population reduction under Alternative 1 would lead to a decreased demand and increased
19 housing availability on the installations and in the region, alleviating housing shortages on the
20 installations for military personnel. However, with an expected decrease in population within the
21 ROI of 5.1 percent, reduced demand for housing in the ROI could potentially lead to a reduction
22 in housing values, although many factors can affect real estate prices. Additionally, housing that
23 the military purchased with base housing allowance would also become available for local
24 residents, leading to additional homes on the market. As a result, housing impacts under
25 Alternative 1 are likely to be adverse and could range from minor to significant.

26 **Schools**

27 Under Alternative 1, removal of 19,786 Soldiers and Army personnel would decrease the
28 number of children by 18,995 in the ROI. It is anticipated that the school district in the ROI that
29 provides education to Army children on the installation would be affected under the Proposed
30 Action. The schools on Fort Shafter and Schofield Barracks, specifically the schools with greater
31 enrollment such as Hale Kula Elementary, Solomon Elementary, and Wheeler Middle, as well as
32 the school district in Honolulu County would be affected under Alternative 1. Alternative 1
33 could benefit some of the schools on the installations that are experiencing over-crowding,
34 alleviating issues such as large classrooms and congested schools. Additionally, a new school on
35 Schofield Barracks would likely not need to be constructed if overcrowding pressures are
36 addressed. However, if enrollment in individual schools is significantly impacted, which is likely
37 the case with on-installation schools, the schools may need to reduce the number of teachers,

1 administrators, and other staff, and potentially close or consolidate with other schools should
2 enrollment fall below sustainable levels.

3 The reduction of Soldiers on Fort Shafter and Schofield Barracks would result in a loss of
4 Federal Impact Aid dollars in the ROI. The amount of Federal Impact Aid a district receives is
5 based on the number of students who are considered “federally connected” and attend district
6 schools. Actual projected dollar amounts cannot be determined at this time due to the variability
7 of appropriated dollars from year to year, and the uncertainty of the actual number of affected
8 school-age children. The school district in the ROI would likely need fewer teachers and
9 materials as enrollment drops, which would partially offset the reduced Federal Impact Aid.
10 Overall, impacts to schools associated with Alternative 1 would be minor to significant and
11 adverse depending on the reductions in the number of military-connected students attending
12 specific schools.

13 **Public Services**

14 The demand for law enforcement, medical care providers, and fire and emergency service
15 providers on Fort Shafter and Schofield Barracks would decrease if Soldiers, Army civilians, and
16 their Family members, affected under Alternative 1, move off the installation. Adverse impacts
17 to public services could conceivably occur if personnel cuts were to substantially affect hospitals,
18 military police, and fire and rescue crews on the installation. These scenarios are not reasonably
19 foreseeable and therefore are not analyzed. Regardless of any drawdown in military or civilian
20 personnel, the Army is committed to meeting health and safety requirements. Overall, minor
21 impacts to public health and safety would occur under Alternative 1; the impacts to public
22 services are not expected to be significant because the existing service level for the installation
23 and the ROI would still be available.

24 **Family Support Services and Recreational Facilities**

25 Family Support Services and recreational facilities would experience reduced demand and use
26 and subsequently, would require fewer personnel and/or reduced funding; however, the Army is
27 committed to meeting the needs of the remaining population on the installation. As a result,
28 minor impacts to Family Support Services and recreational facilities would occur under
29 Alternative 1.

30 **Environmental Justice and Protection of Children**

31 E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
32 *Low-Income Populations*, states: “each Federal agency shall make achieving environmental
33 justice part of its mission by identifying and addressing, as appropriate, disproportionately high
34 and adverse human health or environmental effects of its programs, policies, and activities on
35 minority and low-income populations” (EPA, 1994). In general, Alternative 1 would not have a
36 disproportionate adverse impact to minorities, economically disadvantaged populations or
37 children in the ROI. Job losses would be experienced across all income levels and economic

1 sectors and spread geographically throughout the ROI. As shown in Table 4.29-5, the proportion
2 of minority and poverty populations in Honolulu County are similar in proportion to the state as
3 a whole; as a result, no disproportionate impacts to environmental justice populations
4 would occur.

5 Under E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,
6 federal agencies are required to identify and assess environmental health and safety risks that
7 may disproportionately affect children and to ensure that the activities they undertake do not
8 result in such effects (EPA, 1997). Under Alternative 1, even if the full end-strength reductions
9 were to be realized, the Army is committed to implementing required environmental compliance
10 and meeting the health and safety needs of the people associated with the installation, including
11 children. Therefore, it is not anticipated that implementing Alternative 1 would result in any
12 environmental health and safety risks to children within the ROI. Additionally, this analysis
13 evaluates the effects associated with workforce reductions only, and any subsequent actions on
14 the installation that may require ground-disturbing activities that have the potential to result in
15 environmental health and safety risks to children, such as demolishing vacant buildings, is
16 beyond the scope of this analysis and would be evaluated in future, site-specific NEPA analyses,
17 as appropriate.

18 **4.29.13 Energy Demand and Generation**

19 **4.29.13.1 Affected Environment**

20 The energy demand and generation affected environment of Schofield Barracks remains the
21 same as was discussed in Section 4.18.12.1 of the 2013 PEA.

22 USAG Hawaii's energy needs are currently met by electric power. During the past decade,
23 Congress has enacted major energy bills, and the President has issued Executive Orders that
24 direct federal agencies to address energy efficiency and environmental sustainability. The federal
25 mandates for energy conservation that are most relevant to Fort Shafter include the Energy
26 Policy Act of 2005, E.O. 13423, *Strengthening Federal Environmental, Energy, and*
27 *Transportation Management*, issued January 2007; Energy Independence and Security Act of
28 2007; and E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic*
29 *Performance*, issued October 2009. USAG Hawaii tracks its energy use and is striving to comply
30 with these mandates. USAG Hawaii continues efforts to reduce power demand by implementing
31 energy conservation methods, including promoting the use of photovoltaic lighting where
32 feasible, and examining renewable sources of energy production. The Army is analyzing a
33 possible lease of land to Hawaiian Electric at Schofield Barracks for the construction and
34 operation of a 50-megawatt biofuel-capable power generation plant.

35 Hawaiian Electric Company provides two 46-kV transmission lines to Fort Shafter. Each line has
36 a separate transformer feeding the Fort Shafter distribution system. One line feeds a 10-megavolt

1 amp, 46-kV-12.47/7.4-kV transformer, and the other line feeds a 5/6.25-megavolt amp, 46-kV-
2 12.47/7.4-kV transformer (USAEC, 2008).

3 Hawaiian Electric Company owns the electric substations and provides the operations and
4 maintenance support to the distribution system. The overall electrical system is reported as being
5 in good condition with capacity for expansion if required for future development (USAG
6 Hawaii, 2009).

7 **4.29.13.2 Environmental Effects**

8 **No Action Alternative**

9 The 2013 PEA concluded that there would be negligible impacts to energy demand and
10 generation on Schofield Barracks under the No Action Alternative; no new impacts from the
11 2013 analysis are anticipated.

12 Negligible impacts are anticipated on energy demand at Fort Shafter. Energy demand through the
13 use of Army facilities would continue and not change appreciably from existing levels. USAG
14 Hawaii would continue to look for ways to reduce energy use and increase energy efficiency
15 under the No Action Alternative, although the continued use of outdated, energy inefficient
16 facilities could hinder USAG Hawaii's requirement to reduce energy consumption.

17 **Alternative 1—Implement Force Reductions**

18 The 2013 PEA concluded that there would be beneficial impacts to energy demand and
19 generation on Schofield Barracks under Alternative 1; further force reductions under Alternative
20 1 are also anticipated to have a beneficial impact.

21 Minor, beneficial impacts to energy demand are anticipated because force reductions would
22 reduce the installation's overall demand for energy. The installation would also be better
23 positioned to meet energy and sustainability goals. As discussed in Chapter 1, the demolition of
24 existing buildings or placing them in caretaker status as a result of the reduction in forces is not
25 reasonably foreseeable and not part of the scope of this SPEA; therefore, potential impacts from
26 these activities on energy demand are not analyzed.

27 **4.29.14 Land Use Conflicts and Compatibility**

28 **4.29.14.1 Affected Environment**

29 The land use affected environment of Schofield Barracks remains the same as was discussed in
30 Section 4.18.13.1 of the 2013 PEA.

31 The primary role of Fort Shafter is to support Army organizations that exercise primary
32 command, control, and management of ground defense of the Pacific theater. These
33 organizations include the headquarters of USARPAC; USACE, Pacific Ocean Division; and 9th

1 Mission Support Command Army Reserve. Fort Shafter is also home to engineering,
2 communications, military intelligence, and security units, along with elements of USAG Hawaii
3 (USAEC, 2008).

4 The land uses on Fort Shafter's Main Post are predominantly administrative, residential, and
5 community support. Barracks facilities are centrally located along Bonnie Loop, and Family
6 housing is located in the upper areas of the Main Post. Within Shafter Flats, land uses are
7 generally industrial, maintenance, educational, and parking; this area also includes a Family
8 housing area, Funston Family Housing, in the northwestern portion. Potential future land uses
9 include administrative, maintenance, and housing uses (USAEC, 2008).

10 Land use surrounding Fort Shafter is largely residential and open space, and the city and county
11 of Honolulu zoning regulations largely designate those areas for single-family, multi-family, and
12 park uses (City and County of Honolulu, 2014). Land remaining available for construction
13 outside the installation is primarily mountainous with high topographic relief (USAEC, 2008)
14 and therefore further encroachment on the installation by surrounding development is unlikely.

15 **4.29.14.2 Environmental Effects**

16 **No Action Alternative**

17 Under the No Action Alternative in the 2013 PEA, no impacts to land use were anticipated on
18 Schofield Barracks. The use of Army lands would continue as they are currently designated and
19 authorized. Impacts under the No Action Alternative on Schofield Barracks remain the same as
20 those discussed in Section 4.18.13.2 of the 2013 PEA.

21 No impacts are expected at Fort Shafter under the No Action Alternative. Current uses of the
22 affected environment would not change from existing conditions and would continue as they are
23 designed and authorized. The installation has sufficient critical facilities available to support
24 existing operations and satisfy existing units' living and administrative requirements. Some
25 construction renovation may occur on an as-needed basis in the future. The No Action
26 Alternative is not expected to affect land use on or surrounding the installation. The Army would
27 continue to coordinate with the public regarding any issues that may arise.

28 **Alternative 1—Implement Force Reductions**

29 Under Alternative 1 in the 2013 PEA, beneficial impacts to land use were anticipated on
30 Schofield Barracks from a reduction in training land use that roughly correlates with the number
31 of Soldiers inactivated or realigned as a result of this alternative. Impacts under Alternative 1 on
32 Schofield Barracks remain the same as those discussed in Section 4.18.13.2 of the 2013 PEA,
33 though the magnitude of the benefits would be greater due to the greater reduction in forces that
34 would impact training grounds.

1 No impacts are expected under Alternative 1 at Fort Shafter. Current uses of the affected
2 environment would not change from existing conditions and would continue as they are designed
3 and authorized. As discussed in Chapter 1, the demolition of existing buildings or placing them
4 in caretaker status as a result of the force reductions is not reasonably foreseeable and not part of
5 the scope of this SPEA; therefore, potential impacts to land use from these activities are not
6 analyzed. Alternative 1 is not expected to affect land use on or surrounding the installation.

7 **4.29.15 Hazardous Materials and Hazardous Waste**

8 **4.29.15.1 Affected Environment**

9 As described in the 2013 PEA, hazardous materials are used at Schofield Barracks. The affected
10 environment for hazardous materials and hazardous waste at the installation remains the same as
11 was discussed in the 2013 PEA. This analysis also includes Fort Shafter, a smaller, 590-acre
12 installation and the site of the USARPAC headquarters and USACE, Pacific Ocean Division.
13 Fort Shafter has principally administrative and residential support facilities. Schofield Barracks
14 and Fort Shafter are among 22 sub-installations on the islands of O’ahu and Hawai’i that make
15 up the USAG Hawaii (USAG Hawaii, 2009).

16 Hazardous materials and waste at these facilities (collectively referred to as USAG Hawaii) are
17 tracked and grouped in the following categories by how they are generated: ammunition, live-
18 fire, and UXO; petroleum, oils, lubricants and storage tanks; IRP sites; LBP; asbestos-containing
19 materials; PCBs; pesticides and herbicides; radon; and hazardous wastes. The Army maintains
20 updated Material Safety Data Sheets for all hazardous materials used.

21 As noted in the 2013 PEA, most industrial operations for the Army installations in Hawai’i use
22 the “Super Station” centralized motor pool at Building 2805 on Schofield Barracks. All fuel for
23 industrial use is transported from the Hickam AFB Fuel Farm and stored in ASTs at the Super
24 Station. Two filling stations are located on Schofield Barracks at Buildings 80 and 1167. Both
25 USTs and ASTs are used to store petroleum products and fuels at various locations at Hawai’i.
26 There are a number of in-use and permanently out-of-use USTs at Schofield Barracks, and other
27 USAG Hawaii sub-installations.

28 Facilities containing oil-water separators, grease traps, and wash racks are inspected regularly by
29 the USAG Hawaii Environmental Compliance Office, and DPW is responsible for maintaining
30 these devices.

31 **Hazardous Waste Treatment, Storage, and Disposal**

32 As noted in the 2013 PEA, hazardous wastes generated at USAG Hawaii installations are subject
33 to applicable RCRA regulations. The motor pool facilities at USAG Hawaii have designated
34 waste storage/holding areas with secondary containment for wastes generated by shop and
35 vehicle servicing. The waste is separated into hazardous waste such as lithium batteries or RCRA

1 chemicals, and non-regulated waste such as recyclable oil. The hazardous waste is brought to the
2 hazardous waste shop storage point, while the recyclable materials are brought to the Recyclable
3 Material Shop Storage Point. Hazardous wastes collected at hazardous waste shop storage points
4 are then transferred to less than 90-day storage point on the installation before being properly
5 disposed of.

6 At Schofield Barracks, spent ammunition and live-fire are stored at satellite hazardous waste
7 storage facilities. Fort Shafter has no live-fire ranges, impact areas, ammunition storage, or
8 surface danger zones. Therefore, ammunition, live-fire, and UXO are not a hazardous material of
9 concern at Fort Shafter.

10 **Hazardous Waste Investigation and Remediation Sites**

11 The 2013 PEA identified several IPR sites at USAG Hawaii including on Schofield Barracks.
12 Remedial investigations have also been conducted at various sites on Fort Shafter (U.S. Army,
13 2008a). Soil and groundwater contaminants at USAG Hawaii include explosive compounds,
14 metals, VOCs and semi-VOCs. As noted in the 2013 PEA, Schofield Barracks was previously on
15 the NPL list as a result of a trichloroethylene plume in groundwater; however, that site has since
16 been remediated and was removed from NPL in 2000.

17 **Other Hazards**

18 Other hazards present at USAG Hawaii are controlled, managed, and removed through specific
19 programs and plans and include UXO, radioactive materials, LBP, asbestos-containing materials,
20 PCBs, pesticides, herbicides, and medical waste.

21 **4.29.15.2 Environmental Effects**

22 **No Action Alternative**

23 Minor, adverse impacts are anticipated under the No Action Alternative because there would be
24 continued use and generation of hazardous materials and wastes on USAG Hawaii. The existing
25 types and quantities of hazardous wastes generated on the installation have been accommodated
26 by the existing hazardous waste management system and all materials and waste would continue
27 to be handled accordance with all applicable laws, regulations and plans minimizing
28 potential impacts.

29 **Alternative 1—Implement Force Reductions**

30 Minor, adverse impacts are anticipated as a result of the implementation of Alternative 1.
31 Remediation activities are not expected to be impacted by Alternative 1. Because of the reduced
32 numbers of people, it is likely that the potential for spills would be reduced during training and
33 maintenance activities. Waste collection, storage, and disposal processes would remain mostly
34 unchanged, although the quantities may be reduced. No violation of hazardous waste regulations

1 or the USAG Hawaii hazardous waste permit is anticipated as a result of active forces reduction.
2 Volumes of generated waste are expected to decline depending on the specific units affected.

3 The Army is committed, however, to ensuring that personnel cuts will not result in non-
4 compliance with regulations governing the handling, management, disposal, and clean up, as
5 appropriate, of hazardous materials and hazardous waste. Even if the full end-strength reductions
6 were to be realized at USAG Hawaii, the Army would ensure that adequate staffing remains so
7 that the installation would comply with all mandatory environmental regulations.

8 As discussed in Chapter 1, the demolition and/or renovation of existing buildings as a result of
9 the reduction in forces is not reasonably foreseeable and not part of the scope of this SPEA;
10 therefore, potential impacts from these activities are not analyzed.

11 **4.29.16 Traffic and Transportation**

12 **4.29.16.1 Affected Environment**

13 Twenty-one of the 22 USAG Hawaii sub-installations are located on the island of O’ahu. The
14 Pohakuloa Training Area is located on the island of Hawai’i. For clarity and simplicity, with
15 regards to this SPEA, and with reference to the 2013 PEA, the transportation analysis focuses on
16 the island of O’ahu generally and Fort Shafter and Schofield Barracks specifically. The ROIs for
17 Fort Shafter and Schofield Barracks include the installations, the transportation facilities on their
18 perimeters, and the ACPs that link the internal and external transportation facilities.

19 As indicated in the 2013 PEA, traffic on O’ahu extends largely from urban development in
20 southern coastal areas from Ewa on the west of the island to Hawai’i Kai to the east. The island
21 of O’ahu has four freeways—State Road 78, H-1, H-2, and H-3. State Road 78 (Moanalua Road)
22 functions as a bypass for H-1 (Lunalilo Freeway), which spans the south portion of the island
23 connecting the Ewa area with Hawai’i Kai. H-2 connects the Ewa area with the central portion of
24 the island (where Schofield Barracks is located) and connects with H-1 to east of Honolulu. Fort
25 Shafter is located in Honolulu. H-3 connects Pearl Harbor with Kaneohe Bay Marine Corps
26 Airfield at the northeast portion of the island.

27 The other state highways make up roughly 200 lane-miles of roadway; and the city and county of
28 Honolulu contain approximately 1,200 lane-miles of roadway. Very few roads connect the
29 northern and southern portions of O’ahu (separated by the Koolau Mountains); these are Pali
30 Highway, Likelike Highway, and H-3. The Kalaniana’ole Highway traverses through the east
31 coastline between Hawai’i Kai and Kailua.

32 Fort Shafter and Schofield Barracks are about 20 miles apart on the island of O’ahu, Hawai’i.

1 **Fort Shafter**

2 Fort Shafter is in Honolulu, about 4 miles from the Central Business District in the most densely
3 populated part of the island. It is located just off H-201, which branches off H-1 (USAG Hawaii,
4 2014b). Roadways adjacent to Fort Shafter include Moanalua Freeway, Kaua Street, Notley
5 Street, and Meyers Street. Buckner and Patch Gates are the ACPs for the Fort (USAG Hawaii,
6 2009). Fort Shafter Flats is an additional gate, open 24/7 (USAG Hawaii, 2014b). Buckner, the
7 main gate, has inadequate stacking lengths and lacks deceleration/pull-off lanes. The close
8 proximity of drives and intersections to the gate contributes to the problem. Identification checks
9 and vehicle searches at Buckner gate cause traffic to back up, creating major traffic congestion
10 on the busiest freeway on O'ahu (H-1) (USAG Hawaii, 2009).

11 The existing road network and traffic patterns at Fort Shafter make it difficult to get from point
12 A to point B. There is no clear hierarchy to the roadways and no visual clues to help with
13 wayfinding (USAG Hawaii, 2009).

14 No rail service is available at Fort Shafter. The closest military airfield is Wheeler AAF.
15 Honolulu International Airport is approximately 5 miles from Fort Shafter using city streets and
16 the H-1 freeway (USAG Hawaii, 2009).

17 City bus service is available to many portions of Honolulu and surrounding communities (USAG
18 Hawaii, 2009).

19 **Schofield Barracks and Wheeler Army Airfield (Schofield Barracks)**

20 Schofield Barracks and Wheeler AAF are located approximately 22 miles northwest of the
21 business district of Honolulu, via interstates H-1 and H-2 (USAG Hawaii, 2009). H-2 and
22 Kamehameha Highway traverses the western portion of the Koolau Range and connects
23 Honolulu with Mililani, Wahiawa, Schofield Barracks, and Haleiwa. The installations are
24 separated by State Highway 750 (Kunia Road) and are bordered by the Kamehameha Highway
25 on the east, Highway 99 to the north, and by mountains and gulches to the west and south
26 (USAG Hawaii, 2009). As indicated in the 2013 PEA, the training areas around Schofield
27 Barracks are primarily accessed through the Kamehameha Highway and Kunia Road (from
28 Ewa), and Kamananui Road and Wilikina Drive (from the North Shore). In addition, military
29 convoys travel from Schofield Barracks along H-2 to Pearl Harbor for deployments or training at
30 the Pohakuloa Training Area on the island of Hawai'i.

31 There are four authorized ACPs to Schofield Barracks and two to Wheeler AAF. Schofield
32 Barracks gates include Lyman Gate (main gate and visitor gate, 24/7), Foote Gate, Macomb Gate
33 (Monday through Friday), and McNair Gate (24/7). Wheeler AAF gates include Kunia Gate
34 (24/7) and Kawamura Gate (USAG Hawaii, 2014b).

1 Lyman Gate on Kunia Road became the new main gate in 2012, with access to Wheeler AAF
2 directly opposite the Lyman Gate via the Kunia Gate. Both of these gates were reconfigured to
3 allow additional “stacking space” and to meet required ACP standards (U.S. Military News,
4 2012). There is a considerable amount of movement between Schofield Barracks and Wheeler
5 AAF during the day based on the fact the Garrison HQ and several Garrison directorates as well
6 as 25th ID organizations are located on Wheeler AAF. Much of the morning and evening
7 Wheeler AAF traffic uses the Kawamura Gate that provides direct access to the Kamehameha
8 Highway and H-2 (USAG Hawaii, 2009).

9 Vehicle traffic on Schofield Barracks is contained primarily through Trimble and Lyman Roads,
10 and Kolekole Avenue. There is already a reduced LOS on and off installation due to current local
11 and commuter traffic. Morning and afternoon commutes tend to experience the heaviest traffic
12 flow. There is also an increased flow of traffic around noon, when installation personnel travel to
13 various on- and off-installation dining facilities for lunch. As noted in the 2013 PEA, a key
14 existing traffic circulation issue for Schofield Barracks is excessive traffic through housing areas,
15 which degrades the quality of life and increases the risk to pedestrians and cyclists.

16 Direct access to major portions of Schofield Barracks is inefficient due to the lack of adequate
17 north/south connecting streets. The existing primary and secondary traffic routes are generally
18 short and disjointed requiring an excessively circuitous route to traverse the installation
19 (USAG Hawaii, 2009).

20 Aside from the Family housing area, vehicle parking is extremely limited and negatively impacts
21 mission readiness (USAG Hawaii, 2009).

22 No rail service exists at Schofield Barracks or Wheeler AAF (USAG Hawaii, 2009).

23 Honolulu International Airport is approximately 18 miles south of Schofield Barracks and
24 Wheeler AAF. Most of the drive is interstate along H-2 to H-1 and the terminal
25 (USAG Hawaii, 2009).

26 **4.29.16.2 Environmental Effects**

27 **No Action Alternative**

28 Under the No Action Alternative in the 2013 PEA, no impacts to transportation were anticipated
29 on Schofield Barracks from continued transportation levels. The existing transportation system
30 on O’ahu is extremely stressed and traffic congestion is considerable. LOS in the USAG Hawaii
31 ROI have segments rated D through F (the lowest rating). As noted in the 2013 PEA, that LOS
32 would not get worse as a result of this alternative. Impacts under the No Action Alternative on
33 both Schofield Barracks and Fort Shafter remain the same as those discussed in Section
34 4.18.15.2 of the 2013 PEA.

1 **Alternative 1—Implement Force Reductions**

2 Under Alternative 1 in the 2013 PEA, beneficial impacts to transportation were anticipated on
3 Schofield Barracks from reductions in the severity of traffic flow issues at the Main Gate as well
4 as regionally on O’ahu. Impacts under Alternative 1 of this SPEA on Schofield Barracks remain
5 the same as those discussed in Section 4.18.15.2 of the 2013 PEA, although the magnitude of the
6 beneficial impacts would be greater due to the further reduction in forces.

7 Under Alternative 1 in this SPEA, beneficial, long-term effects are anticipated from the decrease
8 in military fleet vehicles and privately owned vehicles, likely reducing the severity of the traffic
9 flow issues at the Buckner Main Gate at Fort Shafter and Schofield Barracks and Wheeler AAF
10 entrances to the installations. It would also reduce traffic regionally on O’ahu. With this
11 stationing reduction scenario, the Soldier population would decrease and the reduced traffic
12 would no longer compete as much with seasonal (summertime and spring) traffic conditions
13 associated with tourism. A reduction in military use of range roads or trails within USAG Hawaii
14 training areas would occur. In addition, impacts to local highways associated with military
15 convoys would also drastically reduce. Potential conflicts between civilian use and military use
16 of local roadways would be reduced proportionately with the reduction in overall military
17 population at USAG Hawaii (up to 80 percent decrease).

18 **4.29.17 Cumulative Effects**

19 The ROI for USAG Hawaii includes Honolulu County, which encompasses the island of O’ahu.
20 As noted in the 2013 PEA, the cumulative impact analysis for USAG Hawaii (Schofield
21 Barracks) focused on impacts to the environment resulting from the incremental impact of the
22 action when added to past, present, and reasonably foreseeable future actions. About 40
23 reasonably foreseeable future actions were identified for the island of O’ahu and approximately
24 10 were identified for the island of Hawai’i. Some of these actions are ongoing projects that
25 would continue into the future, whereas others are discrete projects that would be conducted in
26 the reasonably foreseeable future. These actions would also pertain to the cumulative impact
27 analysis for USAG Hawaii (Fort Shafter) as both installations are in the same ROI.

28 **Reasonably Foreseeable Future Projects on USAG Hawaii**

29 One reasonably foreseeable future project on USAG Hawaii identified by the installation beyond
30 those identified in the 2013 PEA includes the Schofield Generating Station Project. This source
31 of renewable power would provide energy security for Schofield Barracks, Wheeler AAF, and
32 Field Station Kunia if loss of service occurs from the normal sources of electricity supporting
33 these installations. This project would also benefit the Hawaiian Electric Company and the
34 residents of O’ahu by supplying power to the island-wide grid during normal operations. This
35 project is the subject of a separate NEPA analysis.

1 **Reasonably Foreseeable Future Projects outside USAG Hawaii**

2 In addition to those reasonably foreseeable projects mentioned in the 2013 PEA, the Honolulu
3 Rail project would be appropriate for inclusion in the cumulative impacts analysis. The
4 construction of an elevated rapid transit line serving the city and county of Honolulu on the
5 island of O’ahu would connect Honolulu’s urban center with outlying areas.

6 Additionally, other actions on and off the installation that affect regional economic conditions
7 could include construction and development activities, infrastructure improvements, and
8 business and government projects and activities. In addition, larger economies with more job
9 opportunities may be able to absorb some of the displaced Army workforce, lessening adverse
10 effects from force reductions.

11 **No Action Alternative**

12 Although cumulative effects of the No Action Alternative were not addressed in the 2013 PEA,
13 they are expected to range from beneficial to minor and adverse. Current socioeconomic
14 conditions would persist within the ROI, and the No Action Alternative would not contribute to
15 any changes.

16 **Alternative 1—Implement Force Reductions**

17 The cumulative effects of Alternative 1 are essentially the same as was determined in the 2013
18 PEA. For the following VECs, the Army anticipates a beneficial impact due to force reduction:
19 air quality, airspace, noise, soil erosion, biological resources, energy demand and generation,
20 land use conflict and compatibility, and traffic and transportation. Cumulative impacts to
21 socioeconomics are anticipated to be adverse and significant.

22 The socioeconomic impact under Alternative 1, as described in Section 4.29.12.2 with a loss of
23 19,786 Soldiers and Army civilians, could lead to significant impacts to the population,
24 employment, housing values, and schools in the ROI. USAG Hawaii is an important part of the
25 economy on the island with total employment on the two installations of almost 25,000. In
26 Honolulu County, the Armed Forces account for 5 percent of the workforce. Although the island
27 of O’ahu has a high degree of military, DoD contractors, and government jobs, the tourism
28 economy is the primary source of revenue for the island, with O’ahu attracting considerably
29 more visitors than any of the other Hawaiian islands.

30 It is anticipated that the ARNG, U.S. Army Reserve, Navy, Air Force, and Coast Guard will be
31 making reductions, although the extent of those reductions have not been finalized. Additional
32 stationing of Marines and the Navy Amphibious Group may bring more military presence to the
33 island. These stationing changes would also affect regional economic conditions through the jobs
34 and income they bring (or lose) within the region. The reliance on USAG Hawaii and other DoD
35 presence on the island could lead to reduced USAG Hawaii and supporting activities in the ROI,

1 additional losses in jobs and income, with fewer job opportunities for displaced Army employees
2 in the ROI.

3 Other infrastructure improvements and construction and development activity would also benefit
4 the regional economy through additional economic activity, jobs, and income in the ROI;
5 however, these benefits would not offset the adverse impacts under Alternative 1 and other
6 adverse cumulative actions. Under Alternative 1, the loss of approximately 19,800 Soldiers and
7 Army civilians, in conjunction with other reasonably foreseeable actions, could have significant
8 impacts to population, employment, tax receipts, housing values, and schools in the ROI.

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1 **4.30 Summary of Potential Environmental Impacts**

2 Implementation of the Proposed Action would result in impacts to the natural, cultural, and
3 socioeconomic environment at each of the 30 locations evaluated.

4 Table 4.30-1 summarizes the intensity of impacts to a variety of VECs that are anticipated under
5 the No Action Alternative. The majority of potential impacts would be negligible to minor, with
6 some less than significant impacts. Significant but mitigable impacts are anticipated to occur at:
7 Fort Bliss for traffic and transportation; Fort Bragg for soils and transportation; Fort Gordon for
8 land use; Fort Sill for noise; Fort Wainwright for cultural resources; Joint Base Elmendorf-
9 Richardson for cultural and biological resources; Joint Base Lewis-McChord for water resources;
10 and USAG Hawaii for cultural resources, noise, and soils. Significant impacts are anticipated
11 under the No Action Alternative at Joint Base Lewis-McChord for airspace, noise
12 and transportation.

13 Table 4.30-2 summarizes the intensity of impacts to VECs that are anticipated as part of the
14 implementation of Alternative 1. The majority of potential impacts anticipated to VECs would
15 either be beneficial or negligible to minor and adverse with a few less than significant impacts.
16 Significant but mitigable impacts are anticipated to occur at Fort Wainwright, Joint Base
17 Elmendorf-Richardson, and USAG Hawaii for cultural resources. Significant socioeconomic
18 impacts are anticipated at: Aberdeen Proving Ground, Fort Benning, Fort Bliss, Fort Bragg, Fort
19 Campbell, Fort Carson, Fort Drum, Fort Gordon, Fort Hood, Fort Huachuca, Fort Jackson, Fort
20 Knox, Fort Leavenworth, Fort Lee, Fort Leonard Wood, Fort Polk, Fort Riley, Fort Rucker, Fort
21 Sill, Fort Stewart, Fort Wainwright, Joint Base Elmendorf-Richardson, Joint Base Langley-
22 Eustis, Joint Base Lewis-McChord, and USAG Hawaii. Socioeconomic resources are comprised
23 of a number of components such as population and demographics, employment and income,
24 housing, schools, Family Support Services, and recreation. Not all of these socioeconomic
25 components would be significantly impacted by Alternative 1. Table 4.30-3 summarizes
26 population and economic impacts and also provides the impacts relative to ROI baseline
27 conditions. Table 4.30-4 provides an impact rating for a number of socioeconomic components,
28 including sales, income, employment, and population.

29 No specific mitigation measures are required to reduce any impacts discussed within the VEC
30 environmental effects sections of each of the 30 locations to less than significant. The Army is
31 committed to implementing required environmental compliance and meeting health and safety
32 requirements as it is not reasonable to have cuts result in the elimination of environmental,
33 safety, and health programs on our installations. These commitments would ensure no significant
34 impacts, other than socioeconomics impacts under the Proposed Action.

35 Some locations, such as the Joint Bases discussed in the SPEA and installations that have major
36 tenants from other service branches, may have personnel reductions in response to other
37 initiatives which are outside the scope of the SPEA. When combined with the Army reductions

1 described in Alternative 1, these actions could affect the cumulative impacts. As of May 2014,
2 however, the other services did not provide any specific projections that would allow the Army
3 to quantify or describe these cumulative impacts. Consequently, this SPEA analysis may assist
4 the other services in analyzing cumulative impacts of their proposed actions.

1 **Table 4.30-1. Potential Environmental Impacts of the No Action Alternative**

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	M	N	M	M	M	M	M	M	N	B	M	M	M	M
Fort Belvoir	M	N	N	N	M	N	N	M	N	B	M	M	M	LS
Fort Benning	M	M	M	LS	LS	LS	LS	LS	M	B	M	LS	M	M
Fort Bliss	M	M	N	N	M	N	N	M	N	B	N	M	M	SM
Fort Bragg	M	M	N	M	SM	N	M	N	N	B	M	N	N	SM
Fort Campbell	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Carson	LS	N	N	N	LS	N	M	M	M	B	N	N	M	LS
Fort Drum	M	N	M	N	N	M	M	N	N	B	M	N	N	M
Fort Gordon	M	N	N	N	N	N	N	N	LS	B	N	SM	N	N
Fort Hood	M	N	N	N	M	M	N	M	N	B	N	N	N	N
Fort Huachuca	M	N	M	M	M	M	M	M	N	B	M	M	M	N
Fort Irwin	M	N	M	N	M	M	N	LS	M	B	N	M	M	M
Fort Jackson	M	N	N	N	M	M	M	M	N	B	M	M	M	N
Fort Knox	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Leavenworth	M	N	M	N	M	M	N	M	N	B	M	N	M	M
Fort Lee	M	N	M	N	N	N	N	N	N	B	N	N	N	N
Fort Leonard Wood	M	N	N	N	N	N	N	N	N	B	N	N	N	N
Fort Meade	M	N	N	N	N	N	N	N	N	B	M	N	M	M
Fort Polk	N	N	N	N	M	N	N	N	N	B	N	N	N	N
Fort Riley	M	N	N	N	M	N	N	M	N	B	N	N	N	N
Fort Rucker	M	N	N	LS	M	N	M	M	N	B	M	LS	M	LS
Fort Sill	M	N	N	SM	N	N	N	N	N	B	N	N	N	M
Fort Stewart	M	N	N	N	M	N	M	M	N	B	N	N	N	M
Fort Wainwright	M	M	SM	M	M	M	M	M	N	B	N	N	N	M
Joint Base Elmendorf-Richardson	LS	N	SM	M	LS	SM	LS	M	M	B	M	M	LS	LS
Joint Base Langley-Eustis	M	N	M	N	N	M	M	N	M	B	M	N	M	LS
Joint Base Lewis-McChord	LS	S	LS	S	N	LS	N	LS	LS	B	N	M	M	S
Joint Base San Antonio-Fort Sam Houston	M	N	M	N	M	N	M	M	N	B	M	N	M	N
USAG Hawaii—Schofield Barracks and Fort Shafter	N-M	M	M-SM	LS-SM	N-SM	N-SM	M	M	N-M	B	N	N	M	N

2 Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

1 **Table 4.30-2. Potential Environmental Impacts of Alternative 1—Implement Force Reductions**

Valued Environmental Component	Resource Area													
	Air Quality	Airspace	Cultural Resources	Noise	Soils	Biological Resources	Wetlands	Water Resources	Facilities	Socio-economics	Energy Demand and Generation	Land Use Conflicts and Compatibility	Hazardous Materials and Hazardous Waste	Traffic and Transportation
Aberdeen Proving Ground	B	N	M	M	B	B	B	B	M	S	B	M	M	B
Fort Belvoir	B	B	M	N	B	B	B	B	M	LS	B	N	M	B
Fort Benning	B	N	M	M	B	B	N	M	M	S	B	M	B	B
Fort Bliss	B	M	M	B	B	B	B	B	M	S	B	M	M	B
Fort Bragg	B	M	M	B	B	B	B	B	M	S	B	N	M	B
Fort Campbell	B	N	N	B	B	N	N	B	M	S	B	N	N	B
Fort Carson	B	B	B	B	B	B	B	B	M	S	B	N	B	B
Fort Drum	B	N	M	N	B	M	B	N	M	S	B	N	N	B
Fort Gordon	B	N	N	B	N	N	N	N	M	S	B	B	N	B
Fort Hood	B	B	M	B	B	B	N	B	M	S	B	N	N	B
Fort Huachuca	B	B	M	B	B	B	B	M	M	S	B	M	M	B
Fort Irwin	B	B	B	B	B	B	N	B	M	LS	B	M	M	M
Fort Jackson	B	B	N	B	B	B	B	B	M	S	B	B	M	B
Fort Knox	B	N	M	B	B	N	N	B	M	S	B	N	M	B
Fort Leavenworth	B	N	M	B	B	B	B	B	M	S	B	N	M	B
Fort Lee	B	N	M	B	N	N	N	N	M	S	B	B	M	B
Fort Leonard Wood	B	N	M	N	N	N	N	N	M	S	B	N	M	B
Fort Meade	B	N	N	N	N	N	N	N	M	LS	B	N	M	B
Fort Polk	B	N	N	N	N	N	B	B	M	S	B	N	M	B
Fort Riley	B	N	M	B	N	B	N	B	M	S	B	N	M	B
Fort Rucker	B	N	N	B	B	B	B	B	M	S	B	B	M	B
Fort Sill	B	N	M	B	N	N	N	B	M	S	B	B	LS	B
Fort Stewart	B	N	M	B	N	B	B	B	M	S	B	B	M	B
Fort Wainwright	B	B	SM	B	N	M	M	M	M	S	B	B	N	B
Joint Base Elmendorf-Richardson	B	B	SM	B	M	M	B	B	M	S	B	M	LS	B
Joint Base Langley-Eustis	B	N	M	B	B	M	B	N	M	S	B	N	M	B
Joint Base Lewis-McChord	B	N	M	B	N	B	N	B	M	S	B	B	LS	B
Joint Base San Antonio-Fort Sam Houston	B	N	M	B	B	B	B	B	M	LS	B	N	M	B
USAG Hawaii—Schofield Barracks and Fort Shafter	B	B	M-SM	B	B	B	M-B	M-B	M	S	B	B	M	B

2 Notes: B – beneficial, N – negligible/no impact, M – minor, LS – less than significant, SM – significant but mitigable, S – significant

1 **Table 4.30-3. Summary of Population and Economic Impacts**

Installation	Fiscal Year of the Baseline Population	Potential Population Loss Analyzed in the SPEA	Baseline Permanent Party Soldier and Army Civilian Population	Population Reduction	Percent of 2012 ROI Population	Employment Reduction	Percent of 2012 ROI Labor Force	Income Reduction	Percent of 2012 ROI Income
Aberdeen Proving Ground	2013	4,272	12,335	10,757	0.9	7,321	1.2	\$382.4M	0.6
Fort Belvoir	2013	4,565	9,721	11,495	0.9	6,479	0.5	\$358.2M	0.2
Fort Benning	2011	10,767	17,501	27,111	5.9	13,859	7.0	\$627.0M	3.7
Fort Bliss	2011	16,000	31,380	40,288	3.6	20,864	4.7	\$925.6M	2.8
Fort Bragg	2011	16,000	52,975	40,288	6.9	21,563	8.6	\$968.6M	4.1
Fort Campbell	2011	16,000	32,281	40,288	14.0	19,605	16.2	\$863.3M	7.7
Fort Carson	2011	16,000	25,702	40,288	4.7	21,331	5.6	\$969.5M	2.1
Fort Drum	2011	16,000	19,011	40,288	33.3	19,102	35.2	\$877.5M	16.5
Fort Gordon	2011	4,683	8,142	11,792	3.1	6,243	3.9	\$282.6M	2.1
Fort Hood	2011	16,000	47,190	40,288	9.6	18,915	10.3	\$870.2M	5.2
Fort Huachuca	2013	2,739	5,841	6,897	5.2	3,820	8.1	\$193.5M	4.1
Fort Irwin	2011	3,524	5,539	8,873	0.4	4,545	0.6	\$210.7M	0.3
Fort Jackson	2013	3,071	5,735	7,733	0.9	4,242	1.0	\$189.4M	0.6
Fort Knox	2011	7,605	13,127	19,149	14.0	9,650	16.0	\$431.2M	8.1
Fort Leavenworth	2013	2,524	5,004	6,355	8.1	3,213	9.4	\$154.2M	5.4
Fort Lee	2011	3,538	6,474	8,909	1.9	4,914	2.3	\$242.9M	1.2
Fort Leonard Wood	2011	5,317	9,161	13,388	5.6	6,857	6.5	\$299.8M	3.8
Fort Meade	2013	3,500	6,638	8,813	0.5	5,150	0.4	\$247.8M	0.2
Fort Polk	2011	6,500	10,836	16,367	5.7	8,425	7.2	\$369.4M	3.4
Fort Riley	2011	16,000	19,995	40,288	28.2	19,633	27.9	\$865.1M	14.4
Fort Rucker	2013	2,490	4,957	6,270	3.1	3,389	3.8	\$157.0M	2.1
Fort Sill	2011	6,842	11,337	17,228	13.6	8,482	14.4	\$374.0M	8.0
Fort Stewart	2011	16,000	18,647	40,288	26.9	18,938	30.4	\$853.9M	18.5
Fort Wainwright	2011	5,811	7,430	14,633	14.6	7,399	14.3	\$413.5M	9.1
Joint Base Elmendorf-Richardson	2011	5,333	6,861	13,428	4.5	6,936	4.4	\$355.1M	2.2
Joint Base Langley-Eustis	2011	4,163	7,382	10,482	2.0	5,776	2.3	\$283.4M	1.3
Joint Base Lewis-McChord	2011	16,000	36,222	40,288	3.8	21,344	4.3	\$971.6M	2.1
Joint Base San Antonio	2013	5,934	12,256	14,942	0.7	8,485	0.9	\$392.7M	0.5
USAG Hawaii—Schofield Barracks and Fort Shafter	2013	19,786	25,871	49,821	5.1	26,776	4.3	\$1.35B	1.2

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1 **Table 4.30-4. Potential Socioeconomic Impacts—Implement Force Reductions**

Installation	Sales	Income	Employment	Population
Aberdeen Proving Ground	LS	LS	LS	S
Fort Belvoir	LS	LS	LS	LS
Fort Benning	LS	LS	LS	S
Fort Bliss	LS	LS	S	S
Fort Bragg	LS	LS	S	S
Fort Campbell	LS	LS	S	S
Fort Carson	LS	LS	S	S
Fort Drum	S	S	S	S
Fort Gordon	LS	LS	LS	S
Fort Hood	LS	LS	S	S
Fort Huachuca	LS	LS	S	S
Fort Irwin	LS	LS	LS	LS
Fort Jackson	LS	LS	LS	S
Fort Knox	LS	S	S	S
Fort Leavenworth	S	S	S	S
Fort Lee	LS	LS	LS	S
Fort Leonard Wood	LS	S	S	S
Fort Meade	LS	LS	LS	LS
Fort Polk	LS	S	S	S
Fort Riley	S	S	S	S
Fort Rucker	LS	LS	LS	S
Fort Sill	S	S	S	S
Fort Stewart	S	S	S	S
Fort Wainwright	LS	LS	S	S
Joint Base Elmendorf-Richardson	LS	LS	S	S
Joint Base Langley-Eustis	LS	LS	S	S
Joint Base Lewis-McChord	LS	LS	LS	S
Joint Base San Antonio-Fort Sam Houston	LS	LS	LS	LS
USAG Hawaii—Schofield Barracks and Fort Shafter	LS	LS	S	S

2 Notes: LS – less than significant, S – significant

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4.31 Conclusion

The SPEA's analysis of the impacts associated with the implementation of the Proposed Action has not identified any significant environmental impacts, other than socioeconomic impacts, for the only action alternative analyzed, Alternative 1—Implement Force Reductions. As discussed in Section 4.30, impacts include effects to air quality, airspace, cultural resources, noise, soils, biological resources, wetlands, water resources, facilities, socioeconomics, energy demand and generation, land use, hazardous materials and hazardous waste, and traffic and transportation. The Army is committed to implementing required environmental compliance and meeting health and safety requirements as it is not reasonable to have cuts result in the elimination of environmental, safety, and health programs on our installations. These commitments would ensure no significant impacts, other than socioeconomic impacts, under the Proposed Action. The SPEA identifies some significant socioeconomic impacts, but these by themselves do not require preparation of an EIS. Under Alternative 1, no specific mitigation measures are needed to reduce the anticipated impacts to less than significant. Therefore, an EIS is not required, and a draft FNSI has been prepared. A Notice of Availability of the SPEA and draft FNSI has been published in the *Federal Register* and *USA Today*. Local announcements in the vicinities of the 30 locations analyzed in the SPEA will also be made, inviting the public and all interested parties to provide comment during the 60-day review period.

4.32 Cumulative Effects

4.32.1 Nationwide Cumulative Impact

In addition to the cumulative impacts discussed under each installation section, there are some resources for which the Army 2020 action as a whole could have a nationwide cumulative effect. Those resources are discussed in this section.

4.32.1.1 Greenhouse Gases and Climate Change

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of GHGs, such as CO₂, in our atmosphere. The increase in GHG emissions correlates to an increase in the average temperature of the Earth's atmosphere and oceans, which is commonly referred to as "global warming." Some of the rise in temperature is due to natural forces (including solar and volcanic activity). The 2014 National Climate Assessment (Melillo et al., 2014) determined that only with the inclusion of human influences can models reproduce the observed temperature changes. The Assessment says that the global warming of the past 50 years is primarily due to human activities. The Assessment then states:

Lower emissions of heat-trapping gases and particles mean less future warming and less-severe impacts; higher emissions mean more warming and more severe impacts. Efforts to limit emissions or increase carbon uptake fall into a category

1 of response options known as mitigation,” which refers to reducing the amount
2 and speed of future climate change by reducing emissions of heat-trapping gases
3 or removing carbon dioxide from the atmosphere.

4 Global warming is expected, in turn, to affect weather patterns, average sea level, ocean
5 acidification, chemical reaction rates, and precipitation rates, which is commonly referred to as
6 climate change. U.S. average temperature has increased by 1.3 degrees Fahrenheit (°F) to 1.9°F
7 since record keeping began in 1895 and is projected to lead to more than 8°F warming by 2100,
8 with a high-end possibility of more than 11°F (Melillo et al., 2014). Large increases in global
9 temperatures could have considerable adverse impacts to natural and human environments.

10 GHGs include water vapor, CO₂, methane, nitrous oxide, O₃, and several hydrocarbons and
11 chlorofluorocarbons. Water vapor is a naturally occurring GHG and accounts for the largest
12 percentage of the greenhouse effect. Next to water vapor, CO₂ is the second-most abundant
13 GHG. Uncontrolled CO₂ emissions from power plants, heating sources, and mobile sources are a
14 function of the power rating of each source, the fuel consumed, and the source’s net efficiency at
15 converting the energy in the feedstock into other useful forms of energy (e.g., electricity, heat,
16 and kinetic). Because CO₂ and the other GHGs are relatively stable in the atmosphere and
17 essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of
18 these emissions does not depend upon the source location on the earth (i.e., regional climatic
19 impacts/changes will be a function of global emissions).

20 Army installations produce GHGs through vehicle use, heating and cooling of buildings,
21 electricity generation, munitions explosions, and other activities. In Alternative 1, the Army
22 would reduce its Soldier strength an additional 70,000 from the 2012 strength of 562,000 to
23 420,000. It would also reduce employment of civilians and contractor personnel. This reduction
24 would occur over a number of years and its effects would be felt at installations all over the
25 country. It would mean that there would be a net reduction of vehicle engine use, of munitions
26 use, and of energy consumption on each installation. However, the personnel would continue to
27 operate their personal vehicles. People who would have been in the Army in 2020, for instance,
28 would likely continue to live in the U.S. and would continue to be engaged in activities that
29 result in GHG emissions such as commuting to and from locations other than Army installations.
30 Under the No Action Alternative, GHG emissions would likely be marginally higher than if the
31 Army implements Alternative 1, from the continued operation of the larger Army vehicles and
32 equipment used by its Soldiers. That total difference would be hard to quantify, however, and
33 would likely not be noticeable on the larger national scale. In the final analysis, the net effect of
34 the Army 2020 transformation would be very small compared to the Nation’s overall GHG
35 emissions and would have no significant cumulative effect on climate change.

4.32.1.2 Cumulative Economic Effects

The loss of approximately 70,000 Soldier jobs and additional Army civilian positions (in addition to the 72,000 similar positions addressed in the 2013 PEA) would have a cumulative economic effect. It is important to remember that the Soldiers in these units would not all be suddenly discharged from the Army when their units are inactivated. Some would leave the Army through the normal course of events, to include retirement. In addition, the Army would also use involuntary separation programs and policies to reduce the size of the force. The Army would also take in fewer new Soldiers. These changes would occur over a period of several years. There would not be a flood of Soldiers and Army civilians entering the job market. Finally, some people would leave the Army and go into retirement and not seek employment in the civilian job market.

Nevertheless, by 2020 there would be 70,000 additional people in the U.S. who otherwise might be employed as Soldiers in the Army, as well as people who otherwise might be Army civilian or contractor employees. These people would be competing in the job market and could mean that the people with whom they compete have lower paying jobs or no job at all. Of course, by the same token, some of the military employees could become entrepreneurs and create businesses that create jobs.

As of 2012, approximately 144,000,000 people were employed in non-farm jobs in the U.S. The reduction of the 70,000 Soldiers represents about 0.05 percent of this total. Taking the consideration of the reduction of the 72,000 Soldiers assessed in the 2013 PEA for a total reduction of 142,000, it represents about 0.1 percent of this total. For this reason alone, the effect would not be significant. In addition, the negative effect on nationwide employment would be offset as people with discipline and skills developed in the military enter the job force and are productively employed.

There are some states with more than one installation that have the potential for substantial losses that have been included in this analysis. These are Alaska (Fort Wainwright and Joint Base Elmendorf-Richardson), Georgia (Fort Stewart, Fort Benning, and Fort Gordon), Kansas (Fort Leavenworth and Fort Riley), Kentucky (Fort Knox and part of Fort Campbell), Maryland (Aberdeen Proving Ground and Fort Meade), Texas (Fort Bliss, Joint Base San Antonio [Fort Sam Houston], and Fort Hood), and Virginia (Fort Belvoir, Fort Lee, and Joint Base Langley-Eustis). In these states, the economic impacts of the loss of employment in the individual ROIs could combine to produce a greater impact statewide. In Georgia, for instance, all three installations could see significant economic impacts, and these could have a cumulative effect on the overall state economy. Forts Stewart and Gordon are close enough that the economic impacts could combine to produce a cumulatively greater regional effect. Both of these sites already could have significant local economic difficulties; the cumulative effect could add to that already-significant impact. Fort Benning is far enough away, however, so that this would not add to that impact. It is, however, in close proximity to Fort Rucker, Alabama where a cumulative

1 effect could occur. In Maryland, Aberdeen Proving Ground and Fort Meade are close enough to
2 Fort Belvoir, Virginia, that there could be a cumulative effect on the immediate region. Joint
3 Base Langley-Eustis and Fort Lee are close enough that their impacts could combine to produce
4 adverse cumulative impacts. It is possible that this could mean that Fort Lee's less than
5 significant impacts could be amplified by force reductions at Joint Base Langley-Eustis to some
6 extent, though the ROIs of the installations do not overlap. The installations in Alaska, Kansas,
7 Kentucky, and Texas are also distant enough from each other that a regional cumulative effect is
8 not expected.

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5.0 ACRONYMS

Acronym	Definition
AAF	Army Airfield
ABCT	Armored Brigade Combat Team
ACP	Access Control Points
ACS	Army Community Service
ACUB	Army Compatible Use Buffer
AFB	Air Force Base
AHP	Army Heliport
AIT	Advanced Individual Training
APZ	Accident Potential Zones
AQCR	Air Quality Control Region
Army or U.S. Army	United States Department of the Army
ARNG	Army National Guard
AST	aboveground storage tank
BAMC	Brooke Army Medical Center
BCT	Brigade Combat Team
BMP	best management practice
BRAC	Base Realignment and Closure
CASCOM	Combined Arms Support Command
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CYSS	Child, Youth, and School Services
dB	decibel
dBA	A-weighted decibel
DEQ	Department of Environmental Quality
DES	Directorate of Emergency Services
DoD	Department of Defense
DPW	Directorate of Public Works
EA	environmental assessment
EIFS	Economic Impact Forecast System

Acronym	Definition
EIS	Environmental Impact Statement
E.O.	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FBNA	Fort Belvoir North Area
FEMA	Federal Emergency Management Agency
FMWR	Family Morale Welfare and Recreation
FNSB	Fairbanks North Star Borough
FNSI	Finding of No Significant Impact
FORSCOM	Forces Command
FY	Fiscal Year
GHG	greenhouse gas
HQDA	Headquarters, Department of the Army
HWMP	Hazardous Waste Management Program/Plan
I-	Interstate
IAP	Installation Action Plan
IBCT	Infantry Brigade Combat Team
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ID	Infantry Division
IET	initial entry training
IMCOM	Army Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IONMP	Installation Operational Noise Management Plan
IRP	Installation Restoration Program
ISC	Installation Spill Contingency
ISD	Independent School District
JCC	Jefferson Community College
JLUS	Joint Land Use Study
JRTC	Joint Readiness Training Center
kV	kilovolt

Acronym	Definition
LBP	lead-based paint
LOS	Level of Service
MARC	Maryland Rail Commuter
mgd	million gallons per day
MILCON	Military Construction
MOAs	Military Operations Areas
MS4	Municipal Separate Storm Sewer System
msl	mean sea level
MTA	Maryland Transit Administration
NAAQS	National Ambient Air Quality Standards
NCO	Noncommissioned Officer
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHL	National Historic Landmark
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NSA	National Security Agency
NWI	National Wetlands Inventory
NZ	Noise Zone
O ₃	ozone
PCBs	polychlorinated biphenyls
PCS	permanent change of station
2013 PEA	2013 Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PM _{2.5}	particulate matter whose diameter is less than or equal to 2.5 micrometers
PM ₁₀	particulate matter whose diameter is less than or equal to 10 micrometers
PRS	petroleum release site
PSA	petroleum storage area
QDR	Quadrennial Defense Review
R	Restricted Area

Acronym	Definition
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RCW	red-cockaded woodpecker
RDTE	Research, Development, Test & Evaluation
RECONS	Regional Economic System
ROI	region of influence
RPMP	Real Property Master Plan
RV	recreational vehicle
SAMMC	San Antonio Military Medical Center
SAV	submerged aquatic vegetation
SCOE	Sustainment Center of Excellence
SHPO	State Historic Preservation Office
SKIES	Schools of Knowledge, Inspiration, and Exploration & Skills
SO ₂	sulfur dioxide
SOCOM	U.S. Special Operations Command
SPCC	Spill Prevention, Control, and Countermeasures
SPEA	Supplemental Programmatic Environmental Assessment
SUA	Special Use Airspace
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TDY	Temporary Duty
TLEP	Training Land Expansion Program
UAS	Unmanned Aircraft System
U.S.	United States
USAACE	U.S. Army Aviation Center of Excellence
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USARPAC	U.S. Army Reserve Pacific
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UXO	unexploded ordnance

Acronym	Definition
VEC	Valued Environmental Component
VOC	volatile organic compound
WMATA	Washington Metropolitan Area Transit Authority
WWTP	wastewater treatment plant

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6.0 LIST OF PREPARERS AND CONTRIBUTORS

Tables 6-1 through 6-3 list the individuals responsible for preparing the SPEA for Army 2020 Force Structure Realignment and their areas of technical expertise.

Table 6-1. Headquarters, Department of the Army

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David Howlett	U.S. Army Legal Services Agency	Environmental Law Attorney	JD LLM, Environmental Law	20
Kevin M. Ward	HQDA G-3, Force Management Directorate	Special Assistant	JD	33

Table 6-2. Army Environmental Command

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Pamela Klinger	AEC	COR/NEPA Project Manager	Master of Planning BS, Geology	26
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Thomas Bucci	AEC	Environmental Law Attorney	JD LLM, Environmental Law	16

1 **Table 6-3. The Louis Berger Group, Inc., Team**

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Lee Swain	Dial Cordy and Associates Inc.	Project Manager	MS, Botany BS, Botany	22
Spence Smith	Louis Berger	Deputy Project Manager	MA, Biology BS, Zoology	17
Allison Anolik	Louis Berger	Geographic Information Systems	BA, Geography Post-graduate Work Geographic and Cartographic Science	7
Steven Bedford	Louis Berger	QA/QC of Cultural Resources	PhD, Architectural History B. Arch. BS, Building Science	34
Holly Bender, PHD	Louis Berger	Co-lead and QA/QC for Socioeconomics	PhD, Mineral Economics BA, Political Science and Economics	16
Dara Braitman	Louis Berger	Socioeconomics	BA, Urban Studies MUP, Urban Planning	8
Rebecca Byron, AICP	Louis Berger	Air Quality	MURP, Environmental Planning BS, Environmental Policy and Politics	9
Timothy Canan, AICP	Louis Berger	Document QA/QC	MURP, Urban and Regional Planning BS, Public Administration	24
Joe Dalrymple	Louis Berger	Biological Resources	MS, Marine Science BS, Environmental Science BS, Marine Biology	6
Anjali Dharan	Louis Berger	Socioeconomics	MA, Development Economics BA, International Studies	7
Christopher Dixon	Louis Berger	Socioeconomics	MURP, Urban and Regional Planning MBA BS, Environmental Economics and Management	3
Christopher Flannagan	Louis Berger	Wetlands and Soils	MS, Soil Science BS, Botany BS, Soil and Water Conservation	15

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Doug Ganey	Louis Berger	Hazardous Materials and Hazardous Waste	MESM, Environmental Science MS, Geosciences BA, Geology	22
Erin Hagan	Louis Berger	Water Resources	MEM, Conservation Science BA, Biology	9
Erin Hudson	Louis Berger	Cultural Resources	MA, Anthropology	8
Coreen Johnson	Louis Berger	Document Preparation and Editorial Review	BA, English Education Post-graduate Work, Technical Communication	21
Patti Kuhn	Louis Berger	QA/QC of Cultural Resources	MA, Historic Preservation BFA, Architectural History	10
Deborah Mandell	Louis Berger	Document Preparation and Editorial Review	MBA, Finance and Marketing BA, Government	26
Brandon Marette, M.S., CWB®, PWS	Louis Berger	Biological Resources	MS, Rangeland Ecology BS, Wildlife Biology	13
Deborah Matherly	Louis Berger	Traffic and Transportation	MBA, Finance BS, Public Administration	33
Lisa McDonald	Louis Berger	Co-lead and QA/QC for Socioeconomics	PhD, Mineral Economics BS, Earth Science	20
Jason Medema	Louis Berger	Land Use and Noise	MS, Environmental Studies Graduate Certificate, Real Estate Development BA, International Affairs	11
Kyle Nixon	Louis Berger	Geographic Information Systems	BS, Geography	4
David Plakorus, LEED Green Associate	Louis Berger	Airspace	MURP, Urban and Regional Planning MBA, Business Administration BA, History	5
Denise Short	Louis Berger	Document Preparation and Editorial Review	MS, Agriculture, Food and the Environment BA, English	26

Name	Installation, Affiliation, or Organization	Role	Education	Years of Experience
Suni Shrestha	Louis Berger	QA/QC of Hazardous Materials/Hazardous Wastes	BS, Environmental Analysis and Planning	16
Leo Tidd, AICP	Louis Berger	Air Quality	BS, Environmental Studies MPA, Environmental Science and Policy	8
Tristyne Youngbluth, P.E.	Louis Berger	Facilities and Energy Demand	BS, Civil/Environmental Engineering	16
Julia Yuan	Louis Berger	Document QA/QC	MPS, Forest and Natural Resources Management BS, Environmental and Forest Biology/Forest Resources Management	12

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