Final

Environmental Assessment for the Implementation of the Privatization of Army Lodging Program at Fort Carson, Colorado

Prepared for

Commander, Fort Carson, Colorado

Prepared by

U.S. Army Corps of Engineers, Mobile District

With technical assistance from

Tetra Tech, Inc.
Fairfax, VA

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This environmental assessment (EA) addresses the proposed action to implement the Privatization of Army Lodging (PAL) Program at Fort Carson, Colorado. It has been developed in accordance with the National Environmental Policy Act and implementing regulations issued by the Council on Environmental Quality (Title 40 of the *Code of Federal Regulations* [CFR] Parts 1500–1508) and the Army (32 CFR Part 651). Its purpose is to inform decision makers and the public of the likely environmental and socioeconomic consequences of the Preferred Alternative and other alternatives.

An ***EXECUTIVE SUMMARY*** briefly describes the proposed action, environmental and socioeconomic consequences, and mitigation measures.

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SECTION 1.0: PURPOSE, NEED, AND SCOPE summarizes the purpose of and need for the proposed action and describes the scope of the environmental impact analysis process.

SECTION 2.0: PROPOSED ACTION AND ALTERNATIVES describes the proposed action to implement the PAL Program at Fort Carson and examines alternatives to implementing the proposed action including a Preferred Alternative and a No Action Alternative.

SECTION 3.0: AFFECTED ENVIRONMENT AND CONSEQUENCES describes the existing environmental and socioeconomic setting at Fort Carson and identifies potential effects of implementing the Preferred Alternative and the No Action Alternative.

SECTION 4.0: FINDINGS summarizes the environmental and socioeconomic effects of implementing the Preferred Alternative and the No Action Alternative.

SECTION 5.0: REFERENCES AND PERSONS CONSULTED provides bibliographical information for cited sources and provides a listing of persons and agencies consulted during preparation of this EA.

SECTION 6.0: LIST OF PREPARERS identifies the persons who prepared the document.

SECTION 7.0: DISTRIBUTION LIST indicates recipients of this EA.

APPENDICES ***A*** Record of Non-Applicability and Emission Calculations
B Economic Impact Forecast System Model

An ***ACRONYMS AND ABBREVIATIONS*** list is provided at the end.

ENVIRONMENTAL ASSESSMENT

FOR THE IMPLEMENTATION OF THE PRIVATIZATION OF ARMY LODGING PROGRAM AT FORT CARSON, COLORADO

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ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Office of the Assistant Secretary of the Army, Installations, Energy, and Environment (OASA [IE&E])

TITLE OF PROPOSED ACTION: Implementation of the Privatization of Army Lodging Program at Fort Carson, Colorado

AFFECTED JURISDICTION: Fort Carson, Colorado

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ABSTRACT: This environmental assessment (EA) considers the proposed implementation of the Privatization of Army Lodging Program, including the transfer of lodging assets at Fort Carson, Colorado. The EA identifies, evaluates, and documents the effects of obtaining private sector funding for construction, maintenance, management, renovation, replacement, rehabilitation, and development of transient lodging facilities. This is the Army's Preferred Alternative. A No Action Alternative is also evaluated. Implementation of the Preferred Alternative is not expected to result in significant environmental impacts. Preparation of an environmental impact statement, therefore, is not required, and a finding of no significant impact (FNSI) will be published in accordance with Title 32 of the *Code of Federal Regulations* Part 651 (Environmental Effects of Army Actions) and the National Environmental Policy Act.

REVIEW COMMENT DEADLINE: The final EA and draft FNSI are available for review and comment for 30 days, upon publication of a notice of availability in the *Colorado Springs Gazette* (Colorado Springs, Colorado) and the *El Paso County Fountain Valley News* (Fountain, Colorado). Copies of the EA and Draft FNSI are available for review and comment at the following local libraries: Grant Library, Fort Carson, Colorado; Fountain Library, Fountain, Colorado; Penrose Public Library, Colorado Springs, Colorado; Robert Hoag Rawlings Public Library, Pueblo, Colorado. They are also available online at www.carson.army.mil/DPW/nepa.html. Comments on the EA and draft FNSI should be submitted to the Environmental Division, Directorate of Public Works, 1626 Evans Street, Attention: NEPA Program Manager, Fort Carson, CO 80913, or by e-mail to usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil. Comments on the EA and draft FNSI should be submitted to the above mailing or e-mail addresses no later than the end of the 30-day review period.

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Executive Summary

ES.1 BACKGROUND

This environmental assessment (EA) evaluates the proposal of the Privatization of Army Lodging (PAL) at Fort Carson, Colorado.

ES.2 PROPOSED ACTION

The Army proposes to transfer ownership and operation of its transient lodging facilities to a private-sector development company. Under the proposed action, the Army would execute a lease and supporting agreements negotiated with and approved by the Office of the Assistant Secretary of the Army for Installations, Energy, and Environment. The Army would convey specified lodging facilities and lease the underlying land to its selected development partner, Lend Lease. Lend Lease has formed a special-purpose entity, Rest Easy, LLC (Rest Easy) to execute the lease with Army as lessor and Rest Easy as lessee. Lend Lease would redevelop the lodging facilities, and InterContinental Hotels Group, its contracted hotelier, would manage the lodging operations. The Army would grant a 46-year lease of the land underlying the existing facilities and other land for constructing new lodging facilities. Rest Easy would be expected to meet Fort Carson's lodging requirements through operating and maintaining the existing facilities and by renovating inadequate facilities and constructing new ones.

Implementing the PAL program at Fort Carson would result in the conveyance of as many as five existing lodging facilities to Rest Easy for renovation for either short- or long-term use. These actions would occur over about a 7-year initial development period beginning in 2013 and provide a final inventory of about 186 lodging units. The proposed action would improve the quality of life for Soldiers, their families, and other personnel eligible to use Army transient lodging.

ES.3 PURPOSE AND NEED

The purpose of the proposed action is to transfer ownership and operation of transient lodging to the private sector. The proposed action is needed to provide affordable, quality transient lodging facilities to Soldiers and their families through a combination of new facilities and improvements to existing facilities to ensure that they meet current commercial standards for mid-scale hotels.

ES.4 ALTERNATIVES

The Army identified three alternatives: the Preferred Alternative, relying on the off-post hotel market alternative, and the No Action Alternative. Implementing the PAL program at Fort Carson is the Army's Preferred Alternative. Under the Preferred Alternative, the Army would implement the PAL program at Fort Carson. The Army would convey specified lodging facilities to Rest Easy. The Army would also grant Rest Easy a 46-year lease of the land underlying the existing lodging facilities and other land for constructing new lodging facilities. Rest Easy would be expected to meet Fort Carson's lodging requirements by owning, operating, and maintaining the existing facilities and by renovating inadequate existing facilities. That would achieve the purpose of and need for the proposed action.

The alternative to the Preferred Alternative that was considered is to rely on the off-post hotel market. In lieu of privatizing the function, the Army could exit the lodging business, resulting in

patrons' reliance on off-post hotels and motels for similar services. Eliminating on-post lodging would lengthen the Soldiers' workdays because of commuting; increase their transportation costs (without specific authorization, personnel on temporary duty might be ineligible for rental vehicle reimbursement); and, in some instances, cause them to encounter lodging shortages in adjacent communities. Local hospitality providers could experience wide swings in occupancy rates, especially between Army school sessions. Furthermore, moving Soldiers and their families off-post would increase commuting distances and the use of single occupancy vehicles, which would be in direct conflict with the Army's mandates to reduce greenhouse gas emissions. Terminating the Army's lodging program at Fort Carson would result in abandoning four buildings. The combination of the buildings standing idle until alternative uses could be determined and the time needed to achieve such uses would contravene the Army's policy to manage its resources to their optimal potential. For those reasons, the off-post hotel market alternative is not feasible and is not evaluated in detail in this EA.

A No Action Alternative also is evaluated in detail in this EA. The No Action Alternative is prescribed by Council on Environmental Quality regulations to serve as the baseline against which the Preferred Alternative and other alternatives are analyzed.

ES.5 ENVIRONMENTAL CONSEQUENCES

This EA evaluates potential long- and short-term effects on land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances.

Implementing the Preferred Alternative would be expected to result in a mixture of short- and long-term minor adverse and beneficial effects on the subject environmental resources and conditions. The EA does not identify the need for any mitigation measures.

For each resource area, the predicted effects from the Preferred Alternative and the No Action Alternative are summarized in Table ES-1.

ES.6 CONCLUSION

On the basis of the EA, it has been determined that implementing the Preferred Alternative would have no significant adverse effects on the quality of human life or the natural environment. Preparation of an environmental impact statement is not required before implementing the Preferred Alternative.

Table ES-1.
Summary of potential environmental and socioeconomic consequences

	Environmental and socioeconomic effects	
Resource	**Proposed action (Preferred Alternative)**	**No Action Alternative**
Land use	No effect	No effect
Aesthetic and visual resources	Short-term minor adverse Long-term minor beneficial	Long-term minor adverse
Air quality	Short-term minor adverse	No effect
Noise	Short-term minor adverse	No effect
Geology and soils	Short-term minor adverse	No effect
Water resources	Short- and long-term minor adverse Long-term minor beneficial	No effect
Biological resources	Short-term minor adverse	No effect
Cultural resources	No effect	No effect
Socioeconomics	Short- and long-term minor beneficial	Long-term minor adverse
Transportation	Short-term minor adverse	No effect
Utilities	Long-term minor beneficial and adverse	No effect
Hazardous and toxic substances	Short-term minor adverse Long-term beneficial	No effect

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SECTION 1.0
PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

The Army provides transient lodging for Soldiers and their families on temporary duty and permanent change of station travel. Because funding shortfalls over many years have prevented the proper maintenance, repair, or replacement of facilities, approximately 80 percent of the Army's lodging inventory has been found to not meet acceptable quality standards.

The Privatization of Army Lodging (PAL) program is an initiative to improve facilities and services for transient lodging users. It is founded on the Military Housing Privatization Initiative (MHPI) established in the 1996 Defense Authorization Act.[1] The MHPI authorizes the Army to obtain private capital by leveraging government contributions, making efficient use of limited resources, and using a variety of private-sector approaches to build, renovate, and operate lodging. This environmental assessment (EA) evaluates implementation of the PAL program at Fort Carson, Colorado.

All Army installations in the continental United States, Alaska, Hawaii, and Puerto Rico that have a need for on-post transient housing will participate in the PAL program. The Army divided its installations into three groups (A, B, and C) for implementing the PAL program. Group A consisted of 10 installations; Group B consisted of 11 installations; and Group C, of which Fort Carson is a part, will involve implementing the program at the remaining 21 participating Army installations. The installations participating in the PAL Program are identified in Table 1-1.

Table 1-1.
Installations participating in PAL by group

Group A	Group B	Group C
Fort Hood, TX	Fort Bliss, TX	Fort Meade, MD
Fort Sam Houston, TX	Fort Buchanan, PR	Aberdeen Proving Ground, MD
Fort Sill, OK	Fort Belvoir, VA	Fort Drum, NY
Fort Riley, KS	Fort Hamilton, NY	USAG West Point, NY
Fort Leavenworth, KS	Fort Gordon, GA	Fort McCoy, WI
Fort Rucker, AL	White Sands Missile Range, NM	Dugway Proving Ground, UT
Fort Myer, VA	Fort Huachuca, AZ	Fort Carson, CO
Yuma Proving Ground, AZ	Fort Leonard Wood, MO	Carlisle Barracks, PA
Fort Polk, LA	Fort Wainwright, AK	Fort Lee, VA
Fort Shafter Tripler AMC, HI	Fort Knox, KY	Fort Bragg, NC
	Fort Campbell, KY/TN	Fort Jackson, SC
		Redstone Arsenal, AL
		Fort Hunter Liggett, CA
		Presidio of Monterey, CA
		Camp Parks, CA
		BT Collins, CA
		Fort Stewart, GA
		Hunter Army Air Field, GA
		Fort Benning, GA
		JB Lewis-McChord, WA
		Yakima Training Range, WA

[1] Section 2801, National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, as amended (codified at Title 10 of the *United States Code* (U.S.C.) sections 2871–2885).

1.2 PURPOSE AND NEED

The Army proposes to privatize operation of its lodging at Fort Carson (Figure 1-1). This is the Army's Preferred Alternative. The purpose of the Preferred Alternative is to transfer ownership and operation of the transient lodging to the private sector under a long-term lease.

The need for the proposed action is to improve the quality of life for Soldiers, their families, and other personnel eligible to use Army lodging. Many lodging facilities at Fort Carson are old, and their rehabilitation is not economically feasible. By leveraging scarce resources, the Army can obtain the benefits of capital improvements and professional management that are available through the private sector's investment and experience. In addition, the PAL program sets aside funds for the long-term sustainment of such facilities. Privatization of lodging would enable the Army to focus its resources on its core competencies.

1.3 SCOPE OF ANALYSIS

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the Council on Environmental Quality (CEQ) and the Army.[2] An interdisciplinary team of environmental scientists, biologists, ecologists, geologists, planners, economists, engineers, archaeologists, historians, lawyers, and military technicians reviewed the proposed action in light of existing conditions and has identified relevant beneficial and adverse effects associated with the Preferred Alternative and No Action Alternative.

The purpose of this EA is to inform Army decision makers and the public of the likely environmental consequences of privatizing transient lodging at Fort Carson.

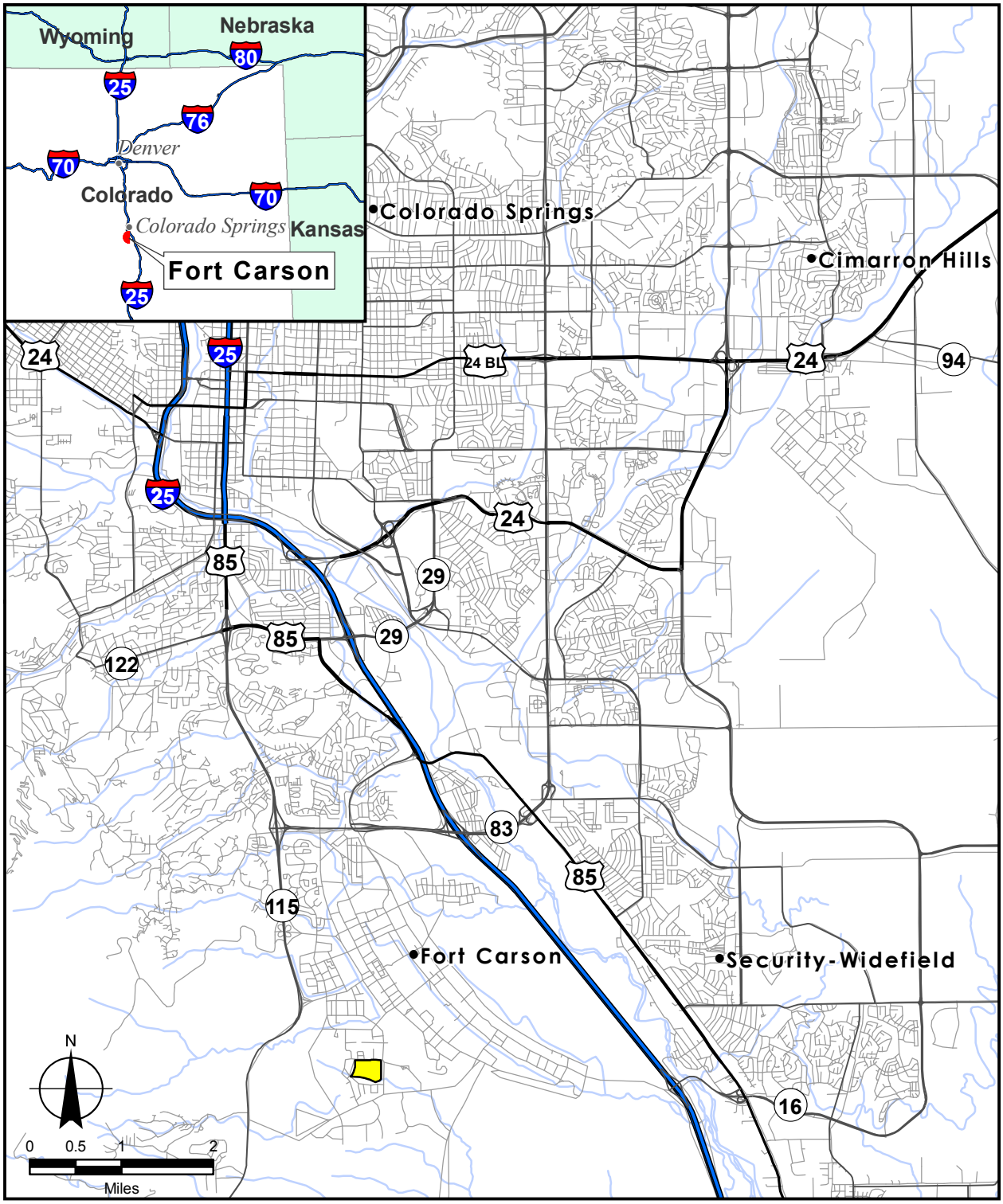
This EA focuses on evaluating environmental effects that are reasonably foreseeable within the initial development period, which is approximately the first 7 years of implementing privatization, described in detail in Section 2.3. This is the period during which the Army's privatization entity would demolish, renovate, and construct new lodging, and take responsibility for owning, operating, and maintaining the on-post lodging facilities. Potential environmental effects beyond 2020 would be speculative; therefore, they are not analyzed in this EA.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in this process.

Army guidance provides for public participation in the NEPA process. If the Army concludes that the proposed action would not result in significant environmental effects, the Army may issue a draft Finding of No Significant Impact (FNSI). The Army will then observe a 30-day period

[2] CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, Title 40 of the *Code of Federal Regulations* (CFR), Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.



Installation Location

Figure 1-1

during which agencies and the public may submit comments on the EA or draft FNSI. Upon consideration of any comments received from the public or agencies, the Army may approve the FNSI and implement the Preferred Alternative. If, however, while developing the EA it is determined that significant effects would be likely, the Army will issue a notice of intent to prepare an environmental impact statement.

1.5 PRIVATIZATION AUTHORITIES

The PAL program is founded on the MHPI. The essence of the MHPI is that it comprehensively allows access to private-sector financial and management resources for constructing, maintaining, managing, renovating, replacing, rehabilitating, and developing housing. In 2002 Congress amended the MHPI to provide that *unaccompanied personnel housing* includes "transient housing intended to be occupied by members of the armed forces on temporary duty."[3]

The Army has competitively selected Lend Lease as its development entity to privatize the Army lodging at Fort Carson. Lend Lease has formed a special-purpose entity, Rest Easy, LLC (Rest Easy) to execute the lease. Lend Lease would redevelop the lodging facilities, and InterContinental Hotels Group (IHG), its contracted hotelier, would take over the lodging operations. Lend Lease completed a Lodging Development Management Plan to serve as the initial business plan for the project. The Lodging Development Management Plan served as a guide when creating the PAL lease. The PAL lease will be expanded to include additional installations, including Fort Carson. After the amended and restated PAL lease is implemented, the transfer of assets and transition to privatized operations would begin. The Army would convey its lodging facilities to the developer and provide long-term leases for the underlying land. In return, the Army would obtain the benefit of modern facilities and services equal to the standards prevailing in the commercial sector.

1.6 ENVIRONMENTAL LAWS AND REGULATIONS

Army decisions that affect environmental resources and conditions occur within the framework of numerous laws, regulations, and executive orders (EOs). Some of the authorities prescribe standards for compliance. Others require specific planning and management actions to protect environmental values potentially affected by Army actions. These include the Clean Air Act, Clean Water Act, Noise Control Act, Endangered Species Act, National Historic Preservation Act, Archaeological Resources Protection Act, Resource Conservation and Recovery Act, Energy Policy Act, Energy Independence and Security Act, and Toxic Substances Control Act. EOs bearing on the proposed action include EO 11988 (*Floodplain Management*); EO 11990 (*Protection of Wetlands*); EO 12088 (*Federal Compliance with Pollution Control Standards*); EO 12580 (*Superfund Implementation*); EO 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*); EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*); EO 13175 (*Consultation and Coordination with Indian Tribal Governments*); EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*); EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*); and EO 13514 *(Federal Leadership in Environmental, Energy, and Economic Performance*). Where useful to better understanding, key provisions of these statutes and EOs are described in more detail in the text of the EA. The text of EOs can be accessed at http://www.archives.gov/federal-register/executive-orders/, and the text of public laws can be accessed at http://www.archives.gov/federal-register/laws/.

[3] Section 2803(b), National Defense Authorization Act for Fiscal Year 2003, Public Law 107-314.

SECTION 2.0
PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The Army proposes to implement the PAL program at Fort Carson. The Army would convey specified lodging facilities to Rest Easy. The Army would also grant a 46-year lease of the land underlying the existing facilities and other land for constructing new lodging facilities.

Rest Easy would be expected to meet Fort Carson's lodging requirements by owning, operating, and maintaining the existing facilities, and renovating inadequate facilities and constructing new ones.

Implementing the PAL program at Fort Carson would entail constructing new lodging facilities and renovating existing facilities. When siting facilities, garrison commanders take into account the following criteria: availability of developable land, consistency with the land use allocations of the installation's master plan, compatibility with adjacent functions, proximity to relevant community services (e.g., Commissary, Post Exchange, and recreation and entertainment venues), and avoiding evident environmental and cultural resource issues (e.g., protected species, cultural resources, past hazardous waste sites, and the like). Fort Carson officials also gave substantial weight to the proximity of new lodging facilities to existing lodging facilities and their required support functions to enable efficient and cost-effective management of operations.

This section presents the Preferred Alternative and the No Action Alternative. It also identifies other alternatives considered but eliminated from detailed study. The proposed action presented in Section 2.3 is the Army's Preferred Alternative.

2.2 NO ACTION ALTERNATIVE

The No Action Alternative, whose inclusion is prescribed by CEQ regulations, serves as a baseline against which the impacts of the Preferred Alternative and other alternatives can be evaluated.

Under the No Action Alternative, the Army would not implement the PAL program at Fort Carson. The Army would continue to provide lodging through the use of facilities funded by Congressional appropriations and by Army Lodging resources that rely on the use of nonappropriated funds. On the basis of historical trends, it is assumed that the government would be unable to dedicate additional resources to support the Army Lodging operation and that maintenance backlogs would remain at present levels or increase. In the absence of implementing the PAL program, the Army would forego opportunities to leverage private-sector financing for the lodging function. Quality of life for personnel using the lodging facilities would in all likelihood decline based on current funding levels.

2.3 PREFERRED ALTERNATIVE

2.3.1 Description of Existing Lodging and Available Land

Fort Carson currently provides on-post transient lodging services through the use of 177 lodging units within four buildings--Colorado Inn, Aspen Lodge, Evergreen Lodge, and Blue Spruce Lodge. A fifth building, Piñon Pines Lodge, was formerly part of Army Lodging, but it has since been converted to a barracks. For the purposes of this project, the existing lodging units, ancillary building, and area available for new construction have been grouped into a single parcel referred to as Parcel A. Table 2-1 identifies the existing lodging inventory. Figure 2-1 provides a detailed view of Parcel A, and Figure 2-2 provides photographs of the lodging structures at Fort Carson.

Table 2-1.
Existing lodging facilities, Fort Carson

Parcel	Building	Building name	Year built	Lodging units	Building square footage	Notes
Parcel A	B7301	Colorado Inn	1956	18	21,725	lodging
	B7302	Blue Spruce Lodge	1970	77	36,027	lodging
	B7303	Piñon Pines Lodge	1970	0*	12,746	barracks
	B7304	Evergreen Lodge	1970	74	36,027	lodging
	B7305	Aspen Lodge	1970	8	12,746	lodging
			Total lodging units	177		

Note: *Piñon Pines is used as barracks, not Army lodging, and is therefore not included in the lodging unit total.

Parcel A consists of 37.38 acres of previously disturbed land that includes the four existing lodging buildings (B7301, B7302, B7304, and B7305), a barracks (B7303), parking lots, and grass-covered open space. The parcel is bordered by Woodfill Road to the north, Sheridan Avenue to the east, family housing to the west, and a drainage feature to the south. The Colorado Inn (B7301), built in 1956, is the primary lodging facility on Fort Carson. It is a three-story brick building that provides administration and back-of-house functions, as well as tenant offices, and offers 18 lodging units. The Blue Spruce Lodge (B7302) and Evergreen Lodge (B7304) were constructed in 1970 as extended-stay accommodations. Both are three-story brick buildings, and together they provide 151 lodging units, including 4 handicap suites. The Aspen Lodge (B7305) was also constructed in 1970. It is a two-story brick building that provides eight distinguished visitor's quarters. Piñon Pines built in 1970, is a two-story brick building that was originally part of Army Lodging but now serves as barracks. The Fort Carson Elkhorn Conference Center, which appears to be located within the west-central portion of Parcel A, is in fact not part of Parcel A and would not be included in the ground lease.

LEGEND

- Proposed PAL Footprint
- Elkhorn Lodge

Aerial View of Parcel A

Figure 2-1

Colorado Inn (B7301)

Blue Spruce Lodge (B7302)

Piñon Pines Lodge (B7303)

Evergreen Lodge (B7304)

Aspen Lodge (B7305)

Figure 2-2. Photos of lodging on Parcel A.

2.3.2 Proposed Lodging Actions

Implementing the PAL program at Fort Carson would involve a long-term hold (LTH) lease and building renovation, demolition, and construction actions as described in the following paragraph and listed in Table 2-2. Upon conveyance and granting of the leases noted in the following, Rest Easy would assume responsibility for all transient lodging assets, and IHG would take over operations as provided for in the leases.

The Army would convey Parcel A to Rest Easy, under a 46-year lease, for constructing two new hotels—a 123-room Candlewood Suites and a 63-room Candlewood Suites—to replace all the existing lodging. The existing lodging buildings (B7301, B7302, B7304, and B7305) would be used during the initial development period to maintain available lodging inventory while new lodging was being built. These buildings would undergo minor renovations, such as making any necessary life safety and critical repairs and improving the interiors of the guest rooms and public spaces. As required by the new hotels' final siting on the parcel, or as the new hotels became operational, the existing lodging would be demolished. The barracks building (B7303) is not lodging, but it is being included in the PAL footprint to allow for maximum flexibility in siting the new hotels, parking, and associated improvements. Building 7303 would not undergo any renovations but would be demolished. Under the Preferred Alternative, the total number of lodging units at Fort Carson would increase from 177 to 186 to meet the current and projected on-post demand.

Table 2-2.
Fort Carson PAL Preferred Alternative

			Lodging units		
Parcel	**Acres**	**Building(s)**	**Beginning state**	**End state**	**PAL action**
Parcel A	37.38	B7301	18	0	Make necessary life safety upgrades or modifications or both to existing lodging units as required for short-term use. Demolish as new units become available to make way for additional new lodging.
		B7302	77	0	
		B7303	0	0	
		B7304	74	0	
		B7305	8	0	
		N/A	0	123	Build a 123-room Candlewood Suites.
		N/A	0	63	Build a 63-room Candlewood Suites.
Total lodging units			177	186	

Note: N/A = not applicable

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Sources of lodging services. The Army now provides transient lodging to Soldiers, their dependents, and other authorized patrons. In lieu of privatizing the function, the Army could choose to discontinue all lodging operations on Army installations. That would require prospective lodging patrons to rely entirely on private-sector hotels and motels for their lodging. Across the Army, many of the current occupants of Army lodging are attending Army schools on-post. Eliminating on-post lodging would lengthen the students' workdays because of commuting; increase their transportation costs (without specific authorization, personnel on temporary duty might be ineligible for rental vehicle reimbursement); and, in some instances, cause them to encounter lodging shortages in adjacent communities. Local hospitality providers could experience wide swings in occupancy rates, especially between Army school sessions.

Furthermore, moving Soldiers and their families off-post would increase commuting distances and the use of single occupancy vehicles, which would be in direct conflict with the Army's mandates to reduce greenhouse gas emissions. At Fort Carson, terminating the Army's lodging program would result in abandoning existing lodging buildings that have a total of 177 lodging rooms. The Army could incur substantial costs to convert the buildings to alternative uses. The combination of idling the facilities until alternative uses could be determined and the time needed to achieve such alternative uses would contravene the Army's policy to manage its resources to optimal potential. For those reasons, this alternative is not feasible and is not evaluated in detail in this EA.

SECTION 3.0
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 LAND USE

3.1.1 Affected Environment

The Fort Carson cantonment area is southwest of Colorado Springs, in El Paso County, Colorado. Fort Carson is at the base of the Rocky Mountain Front Range and is bounded by Interstate 25 (I-25) to the east and Colorado State Highway 115 to the west (Gene Stout & Associates 2007). Pueblo is approximately 30 miles south of the cantonment area, and Denver is approximately 65 miles north (Gene Stout & Associates 2007). The PAL cantonment area is 37.38 acres and constitutes less than 0.1 percent of Fort Carson's total acreage. PAL Parcel A is in the installation's cantonment area. Land use for the PAL parcel is designated as on-post transient housing and barracks, and surrounding land use is compatible. Land uses surrounding the PAL parcel are administration, community facilities, family housing, open space, and troop housing. No land use incompatibilities in or adjacent to the proposed PAL parcel are known to exist.

3.1.2 Environmental Consequences

3.1.2.1 Preferred Alternative

No effects would be expected. The PAL parcel's one current land use designation would not change, nor would implementing the PAL program create any incompatible land uses. Surrounding land uses would not interfere with continued use of the proposed PAL site for Army lodging, and use of the proposed parcel for lodging would not conflict with adjacent land use.

3.1.2.2 No Action Alternative

No effects on land use would be expected. The proposed PAL action would not be implemented under the No Action Alternative; therefore, the No Action Alternative would not result in any changes in land use.

3.2 AESTHETICS AND VISUAL RESOURCES

3.2.1 Affected Environment

Aesthetics and visual resources are the natural and man-made features on the installation landscape. They include cultural and historic landmarks, landforms of particular beauty or significance, water surfaces, and vegetation. Together, those features form the viewer's overall impression of the area or its landscape.

Fort Carson is in the upper regions of the Prairie Grasslands Plant Zone. The area is characterized by openness and generally treeless terrain dominated by plants belonging to the grass family. The open terrain of the installation offers striking views of Wild Mountain, Timber Mountain, and Booth Mountain. Other views across the installation vary, ranging from urban and industrial buildings to open vistas to large training areas.

The proposed PAL footprint consists of 37.38 acres of previously disturbed land that includes the four existing lodging buildings, a barracks, parking lots, and grass-covered open space with

sparse trees. The buildings in the proposed PAL footprint vary in size and shape, are multistory brick, and were constructed in either 1956 or 1970. The existing PAL footprints have maintained lawns, several mature trees, and nearby mowed common areas. The typical view from the PAL footprints is primarily of grass-covered open space, other installation buildings (such as, troop housing, family housing, and community facilities), and open space with views of the hills and mountains in the distance.

3.2.2 Environmental Consequences

3.2.2.1 Preferred Alternative

Short-term minor adverse and long-term minor beneficial effects on aesthetics and visual resources would be expected with this alternative. Short-term minor adverse effects would result from construction and demolition activities. During the construction and renovation phases of the PAL program, views from various vantage points on the installation would be disrupted by construction equipment, construction material staging areas, and bare land as buildings undergo demolition or construction. The visually disrupting effects from demolition and construction would be short term and localized to the areas under construction.

Long-term minor beneficial effects would be expected from the overall improvement in the aesthetic appeal of the lodging areas. Demolition of the old lodging buildings and the corresponding construction of new lodging facilities would improve the aesthetic value of the footprint by introducing newly constructed buildings with updated exteriors. The new hotels would be constructed in accordance with the *Installation Design Guide* (U.S.Army 2007). Reducing the amount of lodging facilities by replacing the existing five buildings with two new buildings would also allow for better views of the surrounding landscape.

3.2.2.2 No Action Alternative

Long-term minor adverse effects on aesthetics and visual resources would be expected with this alternative. The Army would continue to perform regular maintenance on existing lodging, but those activities would be conducted on a constrained budget. Without implementing the PAL program, the Army would forego opportunities to leverage private-sector financing for the lodging function. Aesthetic and visual appeal of lodging facilities could decline on the basis of current funding levels.

3.3 AIR QUALITY

3.3.1 Affected Environment

The U.S. Environmental Protection Agency (EPA) Region 8 and Colorado Department of Public Health and Environment (CDPHE) regulate air quality in Colorado. The Clean Air Act (42 U.S.C. 7401-7671q), as amended, gives EPA responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set acceptable concentration levels for six criteria pollutants: particulate matter (measured as both particulate matter [PM_{10}] and, fine particulate matter [$PM_{2.5}$]), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_X), ozone (O_3), and lead. Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, whereas long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. While each state has the authority to adopt standards stricter than those established under the federal program, Colorado accepts the federal standards.

Federal regulations designate Air Quality Control Regions (AQCRs) in violation of the NAAQS as *nonattainment* areas. Federal regulations designate AQCRs with levels below the NAAQS as *attainment* areas. *Maintenance* AQCRs are areas that have previously been designated nonattainment and have been redesignated as attainment for a probationary period through implementing maintenance plans. According to the severity of the pollution problem, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme.

The Colorado Springs Urbanized Area in El Paso County is in attainment for all NAAQS criteria pollutants. However, it is classified as a maintenance area for CO because of a violation of the 8-hour CO standard in 1988. This CO maintenance area includes the majority of Fort Carson's main post area including areas north of Titus Boulevard and Specker Avenue. This designation is set to run through 2015 (CDPHE 2009). In December 2009 CDPHE approved a Revised Carbon Monoxide Attainment/Maintenance Plan for the Colorado Springs Attainment/Maintenance Area, which is the current State Implementation Plan for the area (CDPHE 2009). In addition, all of El Paso County, including portions of Fort Carson, could soon become designated a moderate nonattainment area for O_3 once EPA issues a final 8-hour standard. Once new standards are set, it normally takes 2 to 3 years before new area designations are finalized and the standards become effective. Although this designation has been delayed, it could become effective as soon as 2012.

Fort Carson is a major source of air emissions for NO_x, CO, and carbon dioxide equivalents (CO_2e). Stationary sources of air emissions at Fort Carson include boilers, generators, paint booths, and landfills. An installation-wide Title V permit (No. 95OPEP110) was issued in July 2007 and is in the process of being renewed. The Title V permit limits the amount of pollutants from significant emission sources in various ways, depending on the source type (e.g., restricting operating hours, fuel type, throughput amount, and emission rates). In addition, the permit limits using smoke munitions and generating fog oil smoke for training exercises, activities that are typically unique to the military. The permit requirements include annual periodic inventory for all significant stationary sources of air emissions and cover monitoring, recordkeeping, and reporting requirements. Fort Carson's 2010 installation-wide air emissions for all significant stationary sources are tabulated in Table 3-1.

Table 3-1.
Annual emissions for significant stationary sources at Fort Carson

Pollutant	Emissions (tons/year)
Volatile organic compounds (VOCs)	3.1
Nitrogen oxides (NO_X)	47.6
Sulfur dioxide (SO_2)	9.3
Fine particulate matter ($PM_{2.5}$)	0.9

Source: Fort Carson 2012

Greenhouse Gases and Climate Change. Greenhouse gases (GHGs) are components of the atmosphere that trap heat relatively near the surface of the earth and, therefore, contribute to the greenhouse effect and climate change. Most GHGs occur naturally in the atmosphere, but increases in their concentration result from human activities such as burning fossil fuels. Global temperatures are expected to continue to rise as human activities continue to add carbon dioxide (CO_2), methane, nitrous oxide, and other greenhouse (or heat-trapping) gases to the atmosphere.

Whether rainfall will increase or decrease remains difficult to project for specific regions (USEPA 2011; IPCC 2007).

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* outlines policies intended to ensure that federal agencies evaluate climate-change risks and vulnerabilities, and to manage the short- and long-term effects of climate change on their operations and mission. The EO specifically requires the Army to measure, report, and reduce its GHG emissions from both direct and indirect activities. The Department of Defense (DoD) has committed to reduce GHG emissions from non-combat activities 34 percent by 2020 (DoD 2010). In addition, the CEQ recently released draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA analyses. The draft guidance includes a presumptive effects threshold of 27,563 tons per year (25,000 metric tons per year) of CO_2e emissions from a federal action (CEQ 2010).

3.3.2 Environmental Consequences

3.3.2.1 Preferred Alternative

Short- and long-term minor adverse effects would be expected. Implementing the Preferred Alternative could affect air quality through airborne dust and other pollutants generated during construction and demolition and by introducing new stationary sources of pollutants, such as heating boilers. Air quality impacts would be considered minor unless the emissions would be greater than the General Conformity Rule applicability threshold, exceed the GHG threshold in the draft CEQ guidance, or contribute to a violation of any federal, state, or local air regulation.

Construction and demolition emissions were estimated for fugitive dust, on- and off-road diesel equipment and vehicles, worker trips, architectural coatings, and paving off-gases. Operational emissions would primarily be from heating emissions for the building and patron vehicle trips. Notably, the increase in lodging units would constitute a small net increase in operational emissions. The estimated emissions from the Preferred Alternative would be below the applicability thresholds; therefore, the General Conformity Rule does not apply (Table 3-2). These effects would be minor. A Record of Non-Applicability is in Appendix A.

Table 3-2.
Annual air emissions compared to applicability thresholds

Activity	Emissions (tons/year)						*de minimis* threshold	Would emissions equal/exceed *de minimis* levels?
	CO	No_x	VOC	SO_x	PM_{10}	$PM_{2.5}$		
Construction and Demolition	6.4	11.5	1.9	< 0.1	1.6	0.8	100(50)[a]	No
Operations	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1		

Note:
SO_X = sulfur oxides, VOC = volatile organic compound
a. The *de minimis* threshold for VOC is 50 tons per year

For analysis purposes, it was assumed that all construction would be compressed into a 12-month period. Therefore, regardless of the ultimate implementation schedule, annual emissions would be less than those shown here. Small changes in the facilities' siting, the ultimate design, and

moderate changes in the quantity and types of equipment used would not have a substantial influence on the emission estimates and would not change the determination under the general conformity rule or level of effects under NEPA.

The hotels on Parcel A would be equipped with individual furnaces or boilers for heating. These stationary sources of air emissions could be subject to federal and state air permitting regulations, including New Source Review, Prevention of Significant Deterioration, National Emission Standards for Hazardous Air Pollutants, or New Source Performance Standards. Operational emissions could be reduced by using more energy-efficient units than were used in the lodging slated for demolition. Rest Easy and IHG would own, operate, and maintain the new lodging facilities on property leased by Fort Carson. In general, leased activities would not be considered under the direct control of Fort Carson.

Such leased activities would normally be considered *tenants*, and Rest Easy and IHG would need to perform an air quality regulatory analysis to determine if any Clean Air Act permitting is required for the operation of any sources of air emissions. However, leased activities may be considered under common control when they also have a contract-for-service relationship to provide goods or services to a military controlling entity at that military installation. Given the variety and complexity of leased and contract-for-service activities at Fort Carson, case-by-case determinations would be necessary to determine if the existing sources of emissions would remain on, or new sources would be added to, Fort Carson's Title V permit.

The Code of Colorado Regulations (CCR) outlines precautions that would be required during the construction of the new facilities, such as controlling fugitive dust and open burning. All contractors would comply fully with all federal, state, and local air regulations. All persons responsible for any operation, process, handling, transportation, or storage facility that could result in fugitive dust would take reasonable precautions to prevent such dust from becoming airborne. Reasonable precautions might include using water to control dust from building demolition, construction, road grading, or land clearing. In addition, best management practices (BMPs) would be required and implemented for activities associated with the Preferred Alternative. The construction would be accomplished in full compliance with current Colorado regulatory requirements, with compliant practices or products. Those requirements include the following:

- Odor Emission (5 CCR 1001-4)
- Open Burning, Prescribed Fire, and Permitting (5 CCR 1001-11)
- Control of Emission of Ozone Depleting Compounds (5 CCR 1001-19)

The above list is not all-inclusive; the Army and any contractors would comply with all applicable air pollution control regulations. Besides those BMPs, no mitigation measures would be required for the Preferred Alternative.

Greenhouse Gases and Climate Change. Under the Preferred Alternative, all construction activities combined would generate approximately 988 tons (896 metric tons) of CO_2. A minute increase in GHG would result from the operations increase in lodging units. Regardless, the GHG emissions associated with the Preferred Alternative would fall well below the CEQ threshold. By using new heating and cooling systems and centrally locating the lodging units, Fort Carson would be taking steps to help the Army reach its GHG reduction goals in accordance with EO 13514.

3.3.2.2 No Action Alternative

Selecting the No Action Alternative would result in no effect on ambient air quality. No construction would occur, and no new lodging operations would take place. Ambient air quality conditions would remain as described in Section 3.3.1.

3.4 NOISE

3.4.1 Affected Environment

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's *quality of life*, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. *A weighting*, measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Sounds encountered in daily life and their dBA levels are provided in Table 3-3.

Table 3-3.
Common sounds and their levels

Outdoor	Sound level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998

The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant. Therefore, A-weighted Day-night Sound Level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, Equivalent Sound Level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (PL 92-574) directs federal agencies to comply with applicable federal, state, and local noise control regulations. In 1974 EPA provided information suggesting

continuous and long-term noise levels in excess of DNL 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals (USEPA 1974).

Colorado's Environmental Noise Act of 1974 limits noise to the level that will protect the health, general welfare, and property of the people of the state. The El Paso County Noise Ordinance (02-1, section 30-15-401) maintains the following noise levels in Table 3-4 by land use. Notably, construction activities are subject to the sound level permitted for industrial areas only for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period to complete the project. At any other time, construction activities are subject to the sound level for the areas indicated residential, commercial, industrial, or non-specified.

Table 3-4.
El Paso County maximum noise levels by land use

	Maximum sound level (dBA)	
Land use	**7:00 a.m.–7:00 p.m.**	**7:00 p.m.–7:00 a.m.**
Residential property or commercial area	55	50
Industrial area or construction Activities	80	75
Non-specified areas	55	50

Source: El Paso County §30-15-401 Ordinance Concerning Noise Levels in Unincorporated El Paso County

Note: In the hours between 7:00 a.m. and 7:00 p.m., the noise levels permitted by this section may be exceeded by 10 dBA for a period not to exceed 15 minutes in any 1-hour period.

Both on- and off-post individuals might be subjected to multiple sources of noise during the day including normal operation of HVAC systems, military unit physical training activities, lawn maintenance, snow removal, and general maintenance of streets and sidewalks. Other minor noise sources are traffic, aircraft over flights, and construction activities. Butts Army Airfield (BAAF) is approximately 3 miles from the proposed new hotels. Existing noise levels (L_{eq} and DNL) were estimated for the surrounding areas using the techniques specified in the American National Standard *Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present.* Parcel A is in an area that would normally be considered quiet commercial industrial and normal urban residential (ANSI 2003). Table 3-5 outlines the closest receptors to the construction and demolition activities.

Table 3-5.
Estimated existing noise levels at the PAL parcel

	Closest noise sensitive area			Estimated existing sound levels (dBA)			
Location	**Distance**	**Direction**	**Type**	**Land use category**	**DNL**	**L_{eq} (daytime)**	**L_{eq} (nighttime)**
Parcel A	56 ft (17 m)	West	Residence	Quiet Commercial, Industrial, and Normal Urban Residential	55	53	47
	173 ft (53 m)	Southwest	Residences				
	224 ft (68 m)	East	Residence				
	1,600 ft (487 m)	Southwest	School				
	1,645 ft (501 m)	Northwest	School				
	1,900 ft (580 m)	Southwest	School				
	2,450 ft (748m)	South	Hospital				

Source: ANSI 2003
Note: ft = feet, m = meter

3.4.2 Environmental Consequences

3.4.2.1 Preferred Alternative

Short-term minor adverse effects would be expected from implementing the Preferred Alternative. Short-term increases in noise would result from the use of construction equipment.

Table 3-6 presents typical noise levels (in dBA at 50 feet) that EPA has estimated for the main phases of outdoor construction. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. Locations more than 800 feet from construction sites seldom experience noteworthy levels of construction noise.

Table 3-6.
Noise levels associated with outdoor construction

Construction phase	L_{eq} (dBA)
Ground clearing	84
Excavation, grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971

Given the temporary nature of proposed construction activities and the limited amount of noise that construction equipment would generate, the effects would be minor. Noise from construction activities would be minimal and confined primarily to construction areas. Limited truck and worker vehicle traffic might be audible at some nearby locations. The effects would be negligible.

No long-term increases in the overall noise environment (e.g., L_{eq}, A-weighted DNL) would be expected with from implementing the Preferred Alternative. No military training activities, use of weaponry, demolitions, or aircraft operations would occur. Therefore, no changes in the existing noise environment associated with these sources would be expected.

3.4.2.2 No Action Alternative

Selecting the No Action Alternative would result in no effect on the noise environment. No construction would occur, and no new lodging operations would take place. Noise conditions would remain as described in Section 3.4.1.

3.5 GEOLOGY AND SOILS

3.5.1 Affected Environment

Fort Carson is approximately 140,000 acres measuring 2 to 15 miles east to west, and 24 miles north to south (Gene Stout & Associates 2007). The eastern portion of Fort Carson is in the

Colorado Piedmont section of the Great Plains Province. The western portion is in the foothills of the Rampart Range section of the Southern Rocky Mountains Province (Gene Stout & Associates 2007).

Primary landforms consist of low plains, high plans, and low hills. Fountain Creek and its tributaries dominate the eastern area of the installation, which is classified as low plains. High plains, consisting of gently rolling uplands to sharp-crested hills and rocky outcrops, are in the southeastern, west-central, and western portions of the installation. The cantonment area is in the high plains. Elevations range from 5,400 to 6,200 feet above mean sea level in the low plains to 5,400 to 6,400 feet above mean sea level in the high plans. Wild Mountain, Timber Mountain, and Booth Mountain are the highest areas on the installation, and Beaver Creek Valley is the lowest. The maximum relief on Fort Carson is 1,840 feet (Gene Stout & Associates 2007).

Geologic units on Fort Carson range in age from Quaternary (one million years before present to recent) to Pennsylvanian (200–250 million years before present). Unconsolidated sediments deposited during the Quaternary consist of fluvial and alluvial sands, silts, and gravels, and wind-deposited silts and sands. Consolidated units include shale, limestone, hard sandstone, siltstone, claystone, and conglomerate (Gene Stout & Associates 2007).

The region is rated *zone one* for earthquake potential on a scale of zero to four, with four having the greatest potential for earthquakes. Very small earthquakes occur in the region with mostly unnoticeable effects. The three main fault lines in the region are Oil Creek, Ute Pass, and Rampart Range faults (Gene Stout & Associates 2007)

Soils are of three types in Parcel A. Approximately 80 percent of the soils are Razor-Midway complex, 13 percent are Nunn clay loam, 0 to 3 percent slopes, and 7 percent are Razor stony clay loam, 5 to 15 percent slopes. Razor-Midway complex and Razor stony clay loam, 5 to 15 percent slopes were formed from clayey slopes alluvium over residuum weathered from shale (USDA NRCS 2011). Both of those soils were formed on hills and uplands, are well drained and have a depth to water table of more than 80 inches. Nunn clay loam, 0 to 3 percent slopes was formed from parent material of mixed alluvium, is well drained, and has a depth to the water table of more than 80 inches (USDA NRCS 2011). None of the soils in Parcel A meet hydric criteria.

Nunn clay loam, 0 to 3 percent slopes is considered prime farmland soil if it were irrigated; however, this soil has been previously disturbed and developed. Therefore, no prime farmland soil subject to protection under the Farmland Policy Protection Act is in the portion of the cantonment area encompassing the PAL parcel; thus, a Farmland Conversion Impact Rating (Form AD-1006) is not warranted. No further action is required under the Farmland Policy Protection Act. Soils of the PAL parcel have been previously disturbed by development.

3.5.2 Environmental Consequences

3.5.2.1 Preferred Alternative

Short-term minor adverse effects on soils would be expected from implementing the Preferred Alternative. Some soil disturbance would be expected during demolition, site preparation, and new construction. New construction, or demolition and reconstruction, on the proposed PAL Parcel A would be expected to involve little vegetation removal because of the previously developed or sparsely vegetated condition of the site. Any vegetation removal, however, and other site preparation and construction-related activities would be expected to increase soil exposure, making soils more susceptible to erosion by wind or water. Such effects would be

minimized, however, by using appropriate site-specific BMPs for controlling erosion and runoff. These erosion and control devices consist of silt fencing for construction areas and gravel or native plants for final stabilization. (Silt fencing is a 3-foot fence around active construction sites, 6 inches is buried below ground to capture debris until construction is complete). All activities would be conducted in accordance with applicable federal, state, and installation regulations to provide erosion and sediment control, including preparing and adhering to site-specific Stormwater Pollution Prevention Plans (SWPPPs), and in accordance with requirements of the Fort Carson National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Stormwater Permit (COR0500F), its CDPHE Phase II Small Municipal Separate Storm Sewer System General Permit (COR042001), and the CDPHE Construction General Permit (COR030000) for construction activities.

No effect on soils would be expected on the proposed PAL parcel where the only activities would be interior and minor exterior building renovations.

No effects on geologic or topographic conditions, or on prime farmland, would be expected under the Preferred Alternative.

3.5.2.2 No Action Alternative

No effects on land use would be expected. The proposed PAL action would not be implemented under the No Action Alternative; therefore, the No Action Alternative would not result in any changes in geology and soils.

3.6 WATER RESOURCES

3.6.1 Affected Environment

Fort Carson is in the Arkansas River Basin, and Fountain Creek is the major surface drainage feature in the northeastern portion of the installation (Gene Stout & Associates 2007). In Parcel A, the impervious areas are drained by pipes into roadside ditches that drain to the Central Unnamed Ditch that drains to Fountain Creek (Jessica Frank, personal communication, 2012). A tributary that crosses the southern portion of Parcel A is identified as U-2 or Titus Boulevard Tributary, and is a tributary of the Unnamed Ditch (USACE 2007). Both U-2 and the Unnamed Ditch are classified as a water of the United States and wetlands are associated with U-2.

Fountain Creek between Monument Creek and State Highway 47 is on the 2012 Clean Water Act section 303(d) list of impaired waters for fecal coliform. Parcel A drains to this segment of Fountain Creek.

Groundwater at Fort Carson occurs in both alluvial and bedrock aquifers. Alluvial aquifers are formed from unconsolidated deposits of stream alluvium that are moderately permeable. However, their dependability is limited by their areal extent, thickness, and available recharge. The alluvial aquifers are capable of providing well yields from 10 to more than 100 gallons per minute (Gene Stout & Associates 2007).

The principal bedrock aquifer at Fort Carson is the Dakota-Purgatoire aquifer and composed of massive bedded sandstones in the Dakota Sandstone and Lytle Sandstone Member of the Purgatoire Formation. This bedrock aquifer can yield 10 gallons per minute, but local fracturing can increase the permeability and yield to more than 200 gallons per minute. Recharge to bedrock aquifers from infiltration of precipitation and stream flow in areas where the aquifer is exposed at

the land surface. Discharge occurs mostly from well pumping and leakage through overlying formations (Gene Stout & Associates 2007).

3.6.2 Environmental Consequences

3.6.2.1 Preferred Alternative

Short- and long-term minor adverse and long-term minor beneficial effects on water resources would be expected from implementing the Preferred Alternative.

Staging, site preparation, demolition, and new construction activities in Parcel A would be expected to involve some soil disturbance or compaction and the potential for removing limited vegetation on-site. It could result in increases in dissolved solids, sediment, or other pollutant runoff that could reach groundwater through infiltration through well-drained soils during overland sheet flow. Potential adverse effects on the groundwater and surface water systems would be minimized by using appropriate site-specific BMPs to control erosion and runoff, in accordance with all applicable federal, state, and installation regulations and by preparing and adhering to site-specific SWPPPs and to requirements of the Fort Carson NPDES Multi-Sector General Stormwater Permit (COR0500F), its CDPHE Phase II Small Municipal Separate Storm Sewer System General Permit (COR042001), and the CDPHE Construction General Permit (COR030000) for construction activities.

Long-term minor adverse effects on water resources would be expected from Parcel A on which demolition followed by new construction, or new construction alone, would result in a net loss of pervious ground cover and net increase in impervious surface area. Increased impervious surface area, such as driveways, parking lots, sidewalks, and rooftops, can result in increased runoff (in the forms of increased volume, velocity, and peak flows), increased erosion, increased pollutant loads (e.g., dissolved solids, petroleum hydrocarbon, nutrients) sediment loads, and reduced ground absorption and infiltration of runoff that would otherwise recharge groundwater aquifers. Long-term minor adverse effects would be minimized by complying with all applicable regulations for stormwater management, including developing an effective, site-specific SWPPP and incorporating BMPs for stormwater management into the site design.

Long-term minor beneficial effects would be expected to result from any PAL parcels on which demolition of existing facilities is followed by replacing formerly impervious surfaces with vegetated cover, or with pervious, nonvegetated, land-stabilizing pervious materials, rather than redevelopment. Such benefits would potentially increase groundwater recharge through the pervious ground cover, reduced volume and velocity of runoff, and reduced potential for erosion and transport of sediment (by wind or water).

3.6.2.2 No Action Alternative

No effects on water resources would be expected. The proposed PAL action would not be implemented under the No Action Alternative; therefore, the No Action Alternative would not result in any changes in water resources.

3.7 BIOLOGICAL RESOURCES

3.7.1 Affected Environment

3.7.1.1 Vegetation

The cantonment area is highly developed and does not contain many natural resources (Gene Stout & Associates 2007). The vegetation found at Fort Carson can be described as generally treeless terrain dominated by plants belonging to the grass family. Grasses that occur on the installation include blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), galleta (*Pleuraphis jamesii*), sideoats grama (*Bouteloua curtipendula*), buffalo grass (*Bouteloua dactyloides*), little bluestem (*Schizachyrium scoparium*), and needle and thread grass (*Hesperostipa comate*). Various shrubs scattered throughout the installation's grasslands are prickly pear cactus (*Opuntia phaeacantha*), cholla cactus (*Opuntia whipple*), four-winged saltbush (*Atriplex canescen*), rabbitbrush (*Chrysothamnus nauseosus*), and skunkbush sumac (*Rhus trilobata*). The dominant species of higher elevation woodlands are Ponderosa pine (*Pinus ponderosa*) and one-seed juniper (*Juniperus monosperma*), while cottonwoods (*Populus* sp.), willows (*Salix* sp.), and cherry trees (*Prunus avium*) dominate woodlands of drainage ways.

The cantonment area's natural resources are managed to provide an aesthetically pleasing environment rather than vegetative community variety or wildlife habitat. Grounds maintenance consists of mowing; planting grass, flowers, shrubs, and trees; and pest control. Vegetation in the proposed PAL parcel consists of maintained lawns, various grasses, scattered planted trees, and planted shrubs.

For the few trees present on the proposed PAL Parcel A the policies and procedures of Fort Carson's urban forest management program would be adhered to. All attempts would be made to try to retain and incorporate trees into the project and protection measures would be implemented to limit on-site damage from construction equipment and activities as described in the Installation Design Guide. However, should it be found necessary to remove any trees from the proposed PAL parcel as part of the proposed action, the trees would either be transplanted or replaced with an approved tree from the Installation Design Guide at a four to one ratio.

3.7.1.2 Wildlife

Wildlife species diversity on Fort Carson is high, but wildlife is concentrated on range and training areas having diverse habitats covering large tracts of relatively undeveloped land (Gene Stout & Associates 2007). Approximately 250 bird, 58 mammal, 22 fish, 15 reptile, and 8 amphibian species are known to occur on the installation.

Wildlife in the cantonment area consists of common and introduced species typical for such areas. The proposed PAL footprint has been previously developed and provides little habitat for most of the wildlife species on the installation.

3.7.1.3 Sensitive Species

No known federally listed plant species occur on Fort Carson (Gene Stout & Associates 2007).

Seven federal and state listed species occur, have occurred, or could occur on Fort Carson. The greenback cutthroat trout (*Oncorhynchus clarki stomias*) and the Arkansas darter (*Etheostoma cragini*) have both been introduced to installation waters in the past as a conservation effort. The

bald eagle (*Haliaeetus leucocephalus*) does not nest on Fort Carson or in its region of influence (ROI), nor has it been observed on installation property during the breeding season. However, it is believed that a winter roost exists east of Fort Carson, which provides the potential for it to appear on the installation. The Mexican spotted owl (*Strix occidentalis lucida*) is known to occur on the installation only as a winter resident in the canyons along Booth and Timber mountains. The Preble's meadow jumping mouse (*Zapus hudsonius preblei*), black-footed ferret (*Mustela nigripes*), and Ute's ladies tresses (*Spiranthes diluvialis*) all could occur on the installation. None of the sensitive species known to occur or that could occur on Fort Carson inhabit the proposed PAL parcel or their surroundings, and the PAL parcel does not provide habitat suitable for any sensitive species of flora or fauna.

3.7.2 Environmental Consequences

3.7.2.1 Preferred Alternative

Short-term minor adverse effects on biological resources would be expected from implementing the Preferred Alternative. Activities associated with this alternative would disturb areas vegetated with grasses that could serve as habitat for some species during the construction and demolition phases. No protected species or species of concern, or wetlands would be expected to be affected by the Preferred Alternative. Any effects to biological resources would cease once the construction of new lodging and demolition of old buildings is completed. Additional impacts to urban forestry resources could occur ranging from no effects to short-term minor adverse depending upon the final site design of the proposed PAL parcel. The retainment, transplantation, or removal of any trees would be coordinated with the installation and done so in accordance with Fort Carson's Urban Forestry management policies and other applicable Army regulations.

3.7.2.2 No Action Alternative

No effects on biological resources would be expected under the No Action Alternative. No vegetation or animal species would be disturbed under the No Action Alternative.

3.8 CULTURAL RESOURCES

3.8.1 Affected Environment

Fort Carson is responsible for identifying, evaluating, and protecting important cultural resources on the installation in compliance with the National Historic Preservation Act (NHPA) and other federal laws, regulations, and standards. Managing cultural resources on the installation is guided, in accordance with Army Regulation 200-1, by an Integrated Cultural Resources Management Plan (ICRMP), which is updated every 5 years. That plan integrates cultural resources management (CRM) into other mission-related activities.

The most recent Fort Carson ICRMP was prepared in 2002. It contains detailed information on area prehistory and history, including a history of Fort Carson itself. Also included in the ICRMP are a discussion of regulatory frameworks and compliance status, party and agency roles and responsibilities, studies conducted to date, known site data, standard operating procedures, and memoranda and agreements applicable to managing cultural resources (Gene Stout & Associates 2002).

Fort Carson has maintained a CRM Program since the late 1970s. The CRM Program personnel have developed and implemented various management plans and agreement documents to guide overall cultural resources identification, treatment, and preservation strategies for compliance with the NHPA and all federal, state, DoD, and Army laws, regulations, and policies provisions regarding CRM. To date, the two most significant guidance documents are a Memorandum of Agreement between Fort Carson, the Colorado State Historic Preservation Officer (COSHPO), and the Advisory Council on Historic Preservation (ACHP), and the ICRMP, 2002–2006 (Gene Stout & Associates 2002); and personal communication of preliminary data prepared for the ICRMP fiscal year 2012 update (Whiting 2012). Approximately 85 percent of Fort Carson has been inventoried for cultural resources, with historic properties identified in the following categories: districts, buildings, structures, and historic, prehistoric, and multi-component archaeological sites.

3.8.1.1 Archaeological Sites

A total of 1,259 archeological sites have been recorded on Fort Carson. Of those, 140 are determined to be eligible for inclusion in the National Register of Historic Places (NRHP), 56 have a status of Needs Data, with 1,063 sites determined to be not eligible. Prehistoric sites number 694; historic sites number 487, of which 73 sites are multi-component (i.e., having both prehistoric and historic components); and approximately 50 sites contain either historic or prehistoric rock art. The cantonment area of Fort Carson has been surveyed 100 percent for cultural resources and is devoid of known eligible prehistoric sites.

Prehistoric sites encompass 60 percent of the total number of sites recorded to date. Prehistoric site types include defensive fortifications, open architectural sites, open and sheltered camp sites, lithic scatter assemblages and food procurement or processing sites, quarry locations, and game drives. Historic sites date to the late 1860s and include 19th/20th century ranching, homestead, and town complexes with numerous building types and functions, and small mining and stone/clay quarry operation sites. Both prehistoric and historic rock art is on Fort Carson, again, with prehistoric elements predominating. Most rock art is in the designated Turkey Creek Rock Art District, but some isolated panels exist. Of the 140 sites on Fort Carson determined to be eligible for inclusion in the NRHP, 56 have a status of Needs Data, 133 are prehistoric, 39 are historic, and 24 are multi-component.

The cultural resources staff at Fort Carson report that the ROI has been subjected to archaeological survey, and no unevaluated, NRHP-eligible, or NRHP-listed sites are present.

3.8.1.2 Native American Resources

Fort Carson has conducted the research and consultation necessary to determine if sacred sites or Traditional Cultural Properties are present (Blythe 2005). No sacred sites have been identified, and there is only one recorded Traditional Cultural Property on Fort Carson. The Traditional Cultural Property is in the Turkey Creek Rock Art District, which is not in or near the ROI.

3.8.1.3 Historic Architecture

The proposed PAL parcel consists of 37.38 acres of previously disturbed land that includes the four existing lodging buildings (B7301, B7301, B7304, and B7305), a barracks (B7303), parking lots, and grass-covered open space. The Colorado Inn (B7301), built in 1956, is the primary lodging facility on Fort Carson. It is a three-story brick building that provides administration and back-of-house functions, and tenant offices, and it offers 18 lodging units. The Blue Spruce

Lodge (B7302) and Evergreen Lodge (B7304) were constructed in 1970 as extended-stay accommodations. Both are three-story brick buildings, and together they provide 147 lodging units. The Aspen Lodge (B7305) was also constructed in 1970. It is a two-story brick building that provides eight distinguished visitor's quarters. Piñon Pines built in 1970, is a two-story brick building that was originally part of Army Lodging but now serves as barracks.

Management actions—including ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of UPH facilities—are all guided by an ACHP Program Comment. That comment provides for alternatives to conventional NHPA section 106 compliance procedures for UPH constructed between 1946 and 1974. Army NHPA section 106 obligations and mitigation were met for those properties through a study titled *Unaccompanied Personnel Housing (UPH) during the Cold War (1946–1989)*(Kuranda et al. 2003). The resulting report consists of a historic context and detailed record of Army UPH including site plans, as-built plans, and photographs. No further NHPA compliance work would be required for UPH on Army property as a result of that Army-wide mitigation study.

3.8.2 Environmental Consequences

According to 36 CFR Part 800, the implementing regulations for the NHPA, an adverse effect on cultural resources is found when the proposed action may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion on the NRHP in a manner that would diminish the integrity of a property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the proposed action that occur later or farther removed in the distance or that are cumulative.

Adverse effects on historic properties include any of the following:

- Physical destruction of or damage to all or part of the property
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines
- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within its setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

For the purposes of this PAL analysis, impacts on cultural resources are considered significant if prehistoric or historic-era resources that are eligible for listing or are formally listed on the NRHP are disturbed or destroyed. Direct impacts are those in which project activities disturb or destroy the integrity of NRHP-listed or NRHP-eligible cultural resources. This can include ground-disturbing activities, noise or other vibrations, renovation, or removal. Indirect impacts are those that could occur later but that can be reasonably predicted at the time of project implementation.

3.8.2.1 Preferred Alternative

Archaeological Resources

No adverse effects on archaeological sites or Native American resources would be expected from implementing the Preferred Alternative. No archaeological resources have been identified or are suspected to be located on Parcel A. A provision would be included in Exhibit E of the ground lease regarding Accidental or Inadvertent Discoveries of Cultural Materials. The lease provision would be based on standard operating procedures in the ICRMP that establish steps to be taken when the accidental discovery of potential archaeological resources occurs.

Traditional Resources

No traditional resources have been identified in the ROI. There would be no effects on traditional resources.

Built Environment Resources

No adverse effects on built environment resources (structures) would be expected. None of the buildings in Parcel A are NRHP eligible. They have been mitigated through the ACHP Program Comment, and an Army-conducted study titled *Unaccompanied Personnel Housing (UPH) during the Cold War (1946–1989)* (Kuranda et al. 2003).

3.8.2.2 No Action Alternative

No effects on cultural resources would be expected under the No Action Alternative. All Army actions affecting the involved parcels would conform to installation policies, the ICRMP, and relevant regulatory frameworks.

3.9 SOCIOECONOMICS

3.9.1 Affected Environment

This section describes the economy and the sociological environment of the ROI surrounding Fort Carson. An ROI is a geographic area selected as a basis on which social and economic impacts of project alternatives are analyzed. The Fort Carson ROI for the social and economic environment is defined as El Paso County, Colorado. The cantonment area of Fort Carson, where the proposed action would occur, is in southern El Paso County. Colorado Springs borders the installation to the north and is also in El Paso County. Socioeconomic data for Colorado and the United States are presented for comparative purposes.

3.9.1.1 Regional Economy

Employment and industry. Civilian labor force and unemployment data are shown in Table 3.9-1. The region's labor force increased 12 percent between 2000 and 2010, lower than the Colorado state labor force growth of 14 percent but higher than the national labor force growth of 8 percent. The ROI 2010 annual unemployment rate was 10 percent, the same as the national unemployment rate but higher than the Colorado unemployment rate of 9 percent. The primary sources of ROI employment were government and government enterprises (which includes federal, military, state, and local government); retail trade; professional, scientific, and technical services; and health care and social assistance. Together, those four industry sectors accounted for

50 percent of regional employment (BEA 2011). Fort Carson is a major contributor to the ROI economy, with an annual economic impact of $1.64 billion, which includes military and civilian payrolls, utilities, construction, and local purchases/contracts. Fort Carson is home to more than 28,000 Soldiers and their 43,000 family members (Fort Carson 2011).

Income. Income data are presented in Table 3.9-2. ROI income levels were very similar to the state and national averages. The ROI per capita personal income (PCPI) was $26,121, which was 91 percent of the Colorado PCPI of $28,723 and 100 percent of the national PCPI of $26,059. The ROI median household income of $51,458 was 95 percent of the Colorado median household income of $54,046 and 103 percent of the national median household income of $50,046 (U.S. Census Bureau 2011a).

Table 3-7.
Labor force and unemployment

	2000 civilian labor force	2010 civilian labor force	Change in labor force, 2000–2010	2010 annual unemployment rate
ROI (El Paso County)	265,291	298,152	12%	10%
Colorado	2,364,990	2,687,396	14%	9%
United States	142,583,000	153,889,000	8%	10%

Source: BLS 2011

Table 3-8.
Income, 2010

	PCPI	Median household income
ROI (El Paso County)	$26,121	$51,458
Colorado	$28,723	$54,046
United States	$26,059	$50,046

Source: U.S. Census Bureau 2011a

Population. Population data are presented in Table 3.9-3. The ROI's 2010 population was about 622,260, an increase of approximately 105,330 persons since 2000. The ROI's population growth of 20 percent was higher than the Colorado population growth of 17 percent and the national population growth of 10 percent. The ROI's population growth is attributable to the industry and job growth in Colorado Springs and at Fort Carson itself. Several Army actions (Base Realignment and Closure, Integrated Global Presence and Basing Strategy, and Army Modular Force) implemented at Fort Carson during the past 5 years include stationing about 8,500 additional Soldiers (and their dependents) at Fort Carson, contributing to the strong regional population growth.

Table 3-9.
Population

	2000 population	2010 population	Change in population, 2000–2010
ROI (El Paso County)	516,929	622,263	20%
Colorado	4,301,261	5,029,196	17%
United States	281,421,906	308,745,538	10%

Source: U.S. Census Bureau 2000, 2011b

3.9.1.2 Quality of Life

Implementing the proposed PAL program would not affect residential housing, shopping or recreational services, or public services (e.g., primary and secondary schooling). They are, therefore, not further addressed in this EA.

Lodging. The Fort Carson lodging facilities are described in Section 2.3. During a 5-year (Fiscal Year 2001 through 2005) Army market study of Fort Carson lodging, the lodging average occupancy rate was 80 percent. The study found that temporary duty travelers averaged about 76 percent of the accommodated lodging demand, permanent change of station travelers averaged about 17 percent of the accommodated demand, and unofficial travelers averaged about 7 percent of the accommodated demand. The study reports that lodging demand at Fort Carson is expected to increase as the number of personnel assigned to the installation would triple as a result of the Base Realignment and Closure, Integrated Global Presence and Basing Strategy, and Army Modular Force actions.

Emergency services. The Fort Carson Directorate of Emergency Services oversees on-post law enforcement, security operations, and fire prevention and response. The Fort Carson Police Division provides physical security, gate access control, law enforcement, and investigation services. The Fort Carson Fire and Emergency Services provides fire suppression, emergency medical services, heavy rescue and aircraft crash fire and rescue, hazardous materials response, wildland fire suppression, fire prevention, and fire and emergency service training. Fort Carson has five fire stations and a training center (Fort Carson DES 2011).

Evans Army Community Hospital on Fort Carson provides medical care to Soldiers, retirees, and their dependents. The Army opened two new medical clinics for Fort Carson, a Soldier and Family Care Clinic on-post and a Premier Army Health Clinic off-post in Colorado Springs. Six dental clinics are also on-post (AMEDD 2011).

3.9.1.3 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued by President Clinton on February 11, 1994. The EO requires that federal agencies take into consideration disproportionately high and adverse environmental effects of governmental decisions, policies, projects, and programs on minority and low-income populations.

According to the U.S. Census Bureau's 2010 census, minority populations composed 28 percent of the ROI's total population. That is lower compared to the Colorado state minority population of 30 percent and the national minority population of 36 percent (U.S. Census Bureau 2011b). The ROI poverty level was 14 percent, higher compared to the Colorado poverty rate of 13 percent but lower than the national poverty rate of 15 percent (U.S. Census Bureau 2011a).

3.9.1.4 Protection of Children

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, issued by President Clinton on April 21, 1997, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. Children are present at Fort Carson as residents and visitors (e.g., family housing, using recreational facilities, attending a public event). The Army takes precautions for their safety

through a number of means, including using fencing, limiting access to certain areas, and requiring adult supervision.

3.9.2 Environmental Consequences

3.9.2.1 Preferred Alternative

EIFS Model Methodology. The economic effects of implementing the Preferred Alternative are estimated using the Economic Impact Forecast System (EIFS) model, a computer-based, economic tool that calculates multipliers to estimate the direct and indirect effects resulting from a given action. Changes in spending and employment caused by renovating and constructing on-post lodging facilities represent the direct effects of the action. Using the input data and calculated multipliers, the model estimates ROI changes in sales volume, income, employment, and population, accounting for the direct and indirect effects of the action.

For purposes of this analysis, a change is considered significant if it is outside the historical range of ROI economic variation. To determine that range, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. That analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes of these variables for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated effect of an action is above the positive RTV or below the negative RTV, the effect is considered significant. Appendix B discusses the methodology in more detail and presents the model inputs and outputs developed for this analysis.

EIFS Model Results. Short-term minor beneficial economic effects on the regional economy would be expected from implementing the PAL Program. The expenditures and employment associated with the construction and renovation of Fort Carson lodging would increase ROI sales volume, employment, and income, as determined by the EIFS model (Table 3.9-4 and Appendix B). The economic benefits would last only for the duration of the development and construction period. Such changes in sales volume, employment, and income would be within historical fluctuations (i.e., within the RTV range) and would be considered minor.

Table 3-10.
EIFS model output

Variable	Projected total change	Percent change	RTV range
Sales (business) volume	$10,106,790	0.05%	-
Income	$2,114,427	0.02%	–7.91% to 8.67%
Employment	50	0.02%	–5.03% to 4.90%
Population	0	0.00%	–1.97% to 4.12%

Source: EIFS model

Lodging. Long-term minor beneficial effects on on-post lodging would be expected. The availability of quality, on-post lodging facilities at a cost that meets government per diem rates is important to Soldiers and visitors when they are on temporary duty or permanent change of station. It also is important to the Army to be able to accommodate Soldiers and guests in suitable on-post lodging equal to that of off-post lodging. Under the Preferred Alternative, the developer would renovate existing lodging for short-term use, and then replace the buildings with two new

hotels to provide a sufficient number of on-post rooms to meet Fort Carson's lodging requirements. The PAL program would provide the installation with modern hotels with suites having private living space, kitchenettes, bedrooms, baths, and guest amenities preferred by today's travelers such as high-speed Internet access, complimentary breakfast, business and fitness centers, guest laundry, and 24-hour convenience stores. These improvements would benefit the quality of life of those who stay at the facilities.

Emergency services. No effects on law enforcement, fire protection, or emergency medical response would be expected. The proposed buildings and renovated buildings would be on Fort Carson property within the jurisdiction of the Fort Carson Directorate of Emergency Services, which would respond to emergencies at the privatized lodging facilities as it does with the existing facilities, at a cost-reimbursable basis to the developer. The new lodging facilities would be built to installation design guidelines and would have all the safety requirements required by law (such as smoke alarms, fire alarms, sprinklers).

Environmental Justice and Protection of Children. No effects would be expected. The Preferred Alternative of renovating and constructing lodging facilities on Fort Carson would not result in disproportionate adverse environmental or health effects on low-income or minority populations or children. The Preferred Alternative is not an action with the potential to substantially affect human health or the environment by excluding persons, denying persons benefits, or subjecting persons to discrimination.

3.9.2.2 No Action Alternative

Long-term minor adverse effects would be expected on quality of life. Continuation of the present lodging programs would perpetuate deficiencies in quality of life for Soldiers, their families, and other personnel eligible to use Army lodging. The Army would continue to do regular maintenance on existing lodging, but those activities would be conducted on a constrained budget. Without implementing the PAL program, the Army would forego opportunities to leverage private-sector financing for the lodging function. Quality of life for personnel using lodging facilities would, in all likelihood, decline given current funding levels.

3.10 TRANSPORTATION

3.10.1 Affected Environment

Transportation in and around Fort Carson is achieved mainly via road and street networks, pedestrian walks, trails and bike paths. The transportation system serves installation traffic consisting of everyday work, living, and recreations trips.

On-Post Roadways and Gate Traffic. Transportation on roadways in and around Fort Carson during the morning and evening peak periods typically operates smoothly at the gates for access to the installation. The main post area contains the majority of Fort Carson's approximately 266 miles of paved roadways. Unpaved roads are scattered throughout the installation totaling approximately 433 miles. Four one-way roads—Specker Avenue, Wetzel Avenue, Magrath Avenue, and Barkley Avenue—are the primary north-south roadways. Butts Road provides access from the main post area to ranges and operational facilities to the south and the downrange area and intersects with Wilderness Road in the north-central part of the installation near BAAF. In general, the paved roadway network is well maintained and capable of accommodating most vehicle types.

Off-Post Roadways. Fort Carson is in central Colorado near the southern edge of Colorado Springs, approximately 75 miles from Denver, and in the western portion of El Paso County. Fort Carson is bounded by I-25 to the east, State Highway 115 to the west, and Academy Boulevard to the north. In addition to I-25, the primary north-south routes in Colorado Springs are along Academy Boulevard and Powers Boulevard. The Colorado Springs roadway network offers few continuous east-west routes, with movement primarily accommodated by Fountain Boulevard, Platte Boulevard, Austin Bluffs Parkway, and Woodmen Road. The only access from Colorado Springs to the west is on U.S. Highway 24; primary access to the east of Colorado Springs is provided along U.S. 24 and State Highway 94 (USAEC 2009). The annual average daily traffic counts (AADT) for these roadways is compiled in Table 3-7 (CDOT 2010).

Table 3-11.
AADT counts for nearby off-post roadways

Roadway	Number of lanes	Posted speed limit	AADT
I-25 (South of State Highway 16)	4	75	38,000
I-25 (North of State Highway 16)	4	75	45,000
I-25 (North of Academy Boulevard)	4	65	74,000
I-25 (North of Bijou Street)	6	55	112,000
U.S. 24 (West of I-25)	4	35	102,000
Academy Boulevard (West of I-25)	5	45	45,000
Academy Boulevard (East of I-25)	5	50	74,000
U.S. 24 Bypass/Fountain Boulevard (East of I-25)	4	55	48,000
State Highway 115 (South of Gate 1)	2	60	18,000
State Highway 115 (South of Gate 1)	4	55	25,000
State Highway 16 (East of I-25)	2	45	9,400
State Highway 85/87 (South of Academy Boulevard)	4	50	21,000
State Highway 94 (East of Marksheffel Road)	2	60	8,400

Source: CDOT 2010

Air, Rail, and Public Transportation. Aviation facilities at Fort Carson are stationed at BAAF, approximately 4 miles south of the cantonment area and immediately south of the Small-Arms Impact Area along Butts Road. First established in 1949, BAAF houses operations and administrative functions for several units, contractor maintenance and support personnel, and rotary-wing aircraft. The closest regional airport is Colorado Springs Municipal Airport (COS) approximately 8 miles north of BAAF. COS provides passenger and cargo service to the surrounding areas with approximately 420 aircraft operations daily (AirNav 2012).

Public transit on Fort Carson is provided by Mountain Metropolitan Transit, which also serves the Colorado Springs metropolitan area. Route 31 provides service in the cantonment area and connects to the regional bus system at the Pikes Peak Community College Transfer Station, north of Fort Carson. Bus service is offered Monday through Friday from 6:00 a.m. to 7:00 p.m. Transit service operates on 50-minute intervals (MMT 2012).

3.10.2 Environmental Consequences

3.10.2.1 Preferred Alternative

Short-term minor adverse effects would be expected from implementing the Preferred Alternative. Construction vehicles would be scheduled and routed to minimize conflicts with other traffic. Construction vehicles and day labor traffic would have a minor adverse effect.

On-Post Roadways, Gate Traffic, and Parking. The proposed new hotels and demolition of current lodging at Parcel A would generate an increase of 113 vehicle trips per day. In general, that would correspond to a net increase in the miles traveled on-post, and a small net increase to on-post traffic.

Individuals accessing the new hotels would use the same gates as now used to access the lodging facilities. A small increase would result in traffic at Gate 5 for individuals with the proper details and IDs; however, it is not expected that traffic at any gate would change substantially from implementing the Preferred Alternative.

The project is in the preliminary design stage, in the final design stage adequate parking would be provided. These effects would be minor.

Off-Post Roadways. The small net increase in lodging units would constitute a corresponding increase of approximately 113 vehicle trips per day at full occupancy either originating at or destined to the installation (ITE 2003). Many of the trips would occur at peak periods and would account for some small amount of off-post traffic. This would constitute a minute change in off-post traffic and not appreciably affect any nearby roadways or intersections. Notably, overall increases in the traffic would be from the changes in mission requirements and not the PAL project in and of itself. These effects would be negligible.

Air, Rail, and Public Transportation. The Preferred Alternative would not be expected to have an appreciable effect on air, rail, or public transportation.

3.10.2.2 No Action Alternative

Selecting the No Action Alternative would result in no effect on transportation resources. No construction would occur, and no new lodging operations would take place. Traffic and transportation conditions would remain as described in Section 3.10.1.

3.11 UTILITIES

3.11.1 Affected Environment

All utility services, including water, wastewater, gas, electricity, and communications, are available near the proposed parcel. The utility components discussed in this section are water supply, sanitary sewer and wastewater system, stormwater drainage, electricity, natural gas, solid waste management, and communications.

Sanitary Sewer and Wastewater. Fort Carson owns and operates a wastewater collection and treatment system for sanitary and industrial wastewater components. Fort Carson's NPDES permit (#CO-0021181) to operate the sanitary sewage treatment plant serves the main post area, the family housing area, the BAAF, and the Wilderness Road Complex areas. Effluent from the

wastewater treatment plant is discharged into Clover Ditch, which is a tributary of Fountain Creek. The design capacity of the 13-year-old plant is 4.0 million gallons per day (mgd), whereas the maximum peak historical flow to the treatment plant is 2.6 mgd (USAAFES 2011). The wastewater system at Fort Carson provides sufficient capacity for current mission and mission support requirements (USAAFES 2011).

Solid Waste. All solid waste from Fort Carson is hauled to off-site landfills, including the Midway Landfill in Fountain, Colorado, by a licensed contractor. Midway Landfill and the other landfills are permitted Subtitle D landfills. Fort Carson operates a recycling center near Gate 3. In addition to the recycling center, two additional large drop-off facilities are at the Post Exchange and at Building 155 (USAEC 2009).

Potable Water Supply. The existing potable water system at Fort Carson is supplied by Colorado Springs Utilities (CSU). Fort Carson owns and operates the entire water system infrastructure on the installation. Potable water is purchased from CSU for domestic, industrial, and irrigation uses. The total delivery capacity of CSU is 175 mgd (USAEC 2009). CSU delivers approximately 28 billion gallons (86,000 acre-feet) of potable water annually, or about 77 mgd. Thus, the CSU system is operating at only about 44 percent capacity. The potable water system at Fort Carson provides sufficient capacity for current mission and mission support requirements and is well below its full operating capacity. The recent construction of new water storage and supply upgrades to support the BAAF development further improve the system's operational capacity (USAAFES 2011).

Natural Gas. Fort Carson purchases natural gas from CSU but owns and operates the entire gas infrastructure on the installation. The natural gas is metered and piped through a series of gas mains and distribution lines that connect to four central heating plants, BAAF, and the family housing area. CSU's maximum delivery capacity to the installation is 24,000 million cubic feet per day (mcf/day) and the peak historical daily consumption of natural gas at Fort Carson is 9,329 mcf/day. Recent upgrades to lines within the main post area will adequately support gas demands. Plans are in place for constructing addition gas supply lines to support the BAAF development and Combat Aviation Brigade stationing that would improve the system's operational capacity (USAAFES 2011).

***Electricity*.** High-voltage utility power at Fort Carson is received from the CSU Drake Generation Station via two aerial 34.5-kilovolt supply lines that terminate at three substations (O'Connell, Titus, and Minick) within the main post area for local distribution. The installation obtains 2.3 percent of its energy needs from solar panels. The peak historical electrical demand at Fort Carson is 27.9 megavolt amperes (MVA). Transmission line capacity is 57.4 MVA; the transformers can handle up to 37.9 MVA of power.

3.11.2 Environmental Consequences

3.11.2.1 Preferred Alternative

Long-term minor adverse effects on utilities would be expected from implementing the Preferred Alternative. These effects would be from adding debris to the landfill from constructing the new lodging facilities and demolishing existing buildings. The existing infrastructure for all utilities would be adequate for projected demands from the proposed lodging facilities.

Implementing the Preferred Alternative would generate approximately 5,696 tons of construction and demolition debris (Table 3-8). Approximately half of the debris would be recycled, which

would result in 2,848 tons of nonhazardous construction and demolition debris for disposal in the Midway Landfill.

Table 3-12.
Summary of construction and demolition debris

	Type	Debris generation rate (lb/sq ft)	Debris generated (tons)	Quantity recycled (50%) (tons)	Total quantity disposed of to the landfill (tons)
Construction					
102,300 sq ft	Nonresidential	4.4	225.1	112.5	112.5
Demolition					
95,150 sq ft	Nonresidential	115.0	5,471.1	2,735.6	2,735.6
Total			5,696.2	2,848.1	2,848.1

Source: USEPA 1998
Note: lb = pounds; sq ft = square feet

A slight increase in utility systems usage would be expected from implementing the Preferred Alternative as responsibility of utilities would be transferred to Rest Easy and IHG. Utility lines are at the adjacent residential and commercial properties with full utility service, alleviating the need for new service connections. The quantities of potable water, wastewater, electricity, natural gas, and solid waste that the occupants in the proposed lodging produce could cause a slight increase in utility usage. Note that the overall utility needs per lodging unit would be lower than existing units because newer construction would conform to Leadership in Energy and Environmental Design standards. As a result of the Preferred Alternative, Rest Easy and IHG would need to establish separate metered utility service for potable water, electricity, natural gas, and communications.

3.11.2.2 No Action Alternative

No effects on utility systems would be expected from implementing the No Action Alternative, under which the environmental baseline would not change. Utility conditions would remain as described in Section 3.11.1.

3.12 HAZARDOUS AND TOXIC SUBSTANCES

3.12.1 Affected Environment

According to installation personnel and because of the age of construction (1970) it is likely that potentially hazardous materials such as lead based paint (LBP) and asbestos containing materials (ACM) were historically used in the structures associated with Parcel A. During the visual site inspection (VSI), potential ACM and LBP were observed on interior and exterior surfaces at the Colorado Inn (B7301), Blue Spruce Lodge (B7302), Piñon Pines Lodge (B7303), Evergreen Lodge (B7304), and Aspen Lodge (B7305). Peeling paint was additionally observed on the exterior surface of Colorado Inn (B7301). During the VSI, a temporary *out-building* was observed immediately adjacent to Piñon Pines Lodge (B7303).

Flammable lockers containing potentially hazardous materials were observed in interior rooms at the Colorado Inn (B7301), Blue Spruce Lodge (B7302), and Evergreen Lodge (B7304); however, no evidence of a release of materials was noted in or around the flammable lockers. One out-

building is immediately to the west of the Piñon Pines Lodge (B7303). Multiple containers of gasoline, propane, and various lawn care equipment were observed in the out-building, and a strong petroleum odor and floor staining were observed in the building. No evidence of a release of materials from the out-building to the natural ground was observed. No other evidence indicating the use, storage, or disposal of potentially hazardous or toxic materials in the PAL facilities was observed during the VSI or reported during interviews with installation personnel.

3.12.2 Environmental Consequences

3.12.2.1 Preferred Alternative

Short-term minor adverse effects and long-term beneficial effects related to hazardous and toxic materials would be expected from implementing the Preferred Alternative. Short-term effects could result from the removal or abatement activities of ACM and LBP. If ACM becomes airborne during construction or demolition, it could present a human health risk. In addition, if LBP is released to the surrounding soil, it could present a soil and groundwater contamination risk from lead leaching into the environment. Special measures should be taken during any construction, removal, or demolition of the structures on Parcel A. Short-term effects would also be expected from adding debris to the landfill from proposed demolition of the PAL facilities. If it is determined that ACM or LBP are present in the facilities, special disposal measures could be needed. Long-term beneficial effects, such as the overall reduction in risk to human health and the environmental would result from removing ACM and LBP from facilities at Fort Carson.

3.12.2.2 No Action Alternative

No effects on the presence of hazardous or toxic substances would be expected from implementing the No Action Alternative, under which the environmental baseline would not change.

3.13 CUMULATIVE EFFECTS SUMMARY

Land Use. No cumulative effects would be expected on land use.

Aesthetics and Visual Resources. No cumulative effects on aesthetics and visual resources would be expected from implementing the Preferred Alternative.

Noise. No cumulative noise effects would be expected.

Air Quality. No significant adverse cumulative air quality effects would be expected. Colorado takes into account the effects of all past, present, and reasonably foreseeable emissions when developing the State Implementation Plan. The state accounts for all significant stationary, area, and mobile emission sources in developing the plan. Estimated emissions generated by the Preferred Alternative would be *de minimis* and would not be regionally significant.

Geology and Soils. No cumulative effects would be expected on geology and soils.

Water Resources. No cumulative effects on water resources would be expected from implementing the Preferred Alternative.

Biological Resources. No cumulative effects would be expected on biological resources.

Cultural Resources. No cumulative effects on cultural resources would be expected with this alternative.

Socioeconomics. No cumulative effects would be expected on socioeconomics.

Transportation. Negligible cumulative transportation effects would be expected. The size and scope of the changes in the transportation systems associated with the Preferred Alternative would be extremely small when compared to other planned projects in the area. As a result, the traffic impacts during construction would not contribute appreciably to cumulative effects. Notably, overall changes in the traffic would be due to the change in mission requirements, and not from implementing the PAL project in and of itself.

Utilities. Negligible cumulative utility effects would be expected. The size and scope of the changes in the utilities associated with the Preferred Alternative would be extremely small when compared to other planned projects in the area. As a result, the utility impacts during construction would not contribute appreciably to cumulative effects.

Hazardous and Toxic Substances. Short-term minor adverse effects and long-term beneficial effects related to hazardous and toxic materials would be expected from implementing the Preferred Alternative. Short-term human health risks could result during the removal or abatement activities of ACM and LBP. Furthermore, if it is determined that ACM or LBP is in the buildings, special disposal measures could be needed. Long-term beneficial effects, such as the overall reduction in risk to human health and the environmental would result from the removal of ACM and LBP from facilities at Fort Carson.

3.14 MITIGATION SUMMARY

Mitigation actions are used to reduce, avoid, or compensate for significant adverse effects. This EA does not identify any significant adverse effects or the need for any mitigation measures.

SECTION 4.0
CONCLUSIONS

This EA has been prepared to evaluate the potential effects on the natural and human environment from the proposal to implement the PAL program at Fort Carson, Colorado. The EA examines the proposed action (Preferred Alternative) and a No Action Alternative. The No Action Alternative is prescribed by CEQ regulations to serve as the baseline against which the proposed action and alternatives are analyzed.

This EA evaluates potential long- and short-term effects on land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including environmental justice and protection of children), transportation, utilities, and hazardous and toxic substances.

Implementing the proposed action would be expected to result in a combination of short- and long-term minor adverse and beneficial effects. Short-term minor adverse effects on aesthetics and visual resources, air quality, noise, soils, surface and groundwater, biological resources, and transportation would be expected, primarily associated with construction and renovation activities. Long-term minor adverse effects would be expected on utilities from the increase in solid waste (construction and demolition debris). Long-term minor adverse effects would be expected on water resources, primarily associated with potential soil compaction resulting from renovation, construction, and demolition activities that could result in an increase in stormwater runoff and a decrease in infiltration to groundwater. Short-term minor beneficial effects on the local economy would be expected from expenditures and employment associated with lodging renovation and construction. Long-term minor beneficial effects on aesthetic and visual resources, and socioeconomics (quality of life) would be expected from the overall improved quality of the lodging facilities. Long-term minor beneficial effects on surface and groundwater would be expected from replacing formerly impervious surfaces with vegetated cover. Long-term minor beneficial effects on utilities would result from the modernized lodging facilities with energy-efficient and low-usage utility systems, appliances, and fixtures. Long-term beneficial effects would be expected from the removal of ACM and LBP from facilities at Fort Carson.

Mitigation actions are used to reduce, avoid, or compensate for significant adverse effects. This EA does not identify any significant adverse effects or the need for any mitigation measures.

For each resource, the predicted effects from both the proposed action, identified as the Army's Preferred Alternative, and the No Action Alternative are summarized in Table 4-1.

Implementing the proposed action would not be expected to result in significant environmental or socioeconomic effects. Issuance of a FNSI would be appropriate, and an environmental impact statement need not be prepared before implementing the proposed action.

Table 4-1.
Summary of potential environmental and socioeconomic consequences

	Environmental and socioeconomic effects	
Resource	**Proposed Action (Preferred Alternative)**	**No Action Alternative**
Land use	No effect	No effect
Aesthetic and visual resources	Short-term minor adverse Long-term minor beneficial	Long-term minor adverse
Air quality	Short-term minor adverse	No effect
Noise	Short-term minor adverse	No effect
Geology and soils	Short-term minor adverse	No effect
Water resources	Short- and long-term minor adverse Long-term minor beneficial	No effect
Biological resources	Short-term minor adverse	No effect
Cultural resources	No effect	No effect
Socioeconomics	Short- and long-term minor beneficial	Long-term minor adverse
Transportation	Short-term minor adverse	No effect
Utilities	Long-term minor beneficial and adverse	No effect
Hazardous and toxic substances	Short-term minor adverse Long-term beneficial	No effect

SECTION 5.0
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APPENDIX A
Record of Non-Applicability and Emission Calculations

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RECORD OF NON-APPLICABILITY

In Accordance with the Clean Air Act General Conformity Rule for
the Proposed Privatization of Army Lodging, Fort Carson, Colorado

19 June 2012

The Army proposes to privatize the ownership and operations of its lodging at Fort Carson, Colorado. The Army would convey specified lodging facilities to Rest Easy and InterContinental Hotel Group. The Army would also grant 7-year and 46-year leases of the land underlying the existing facilities, and other land for construction of new lodging facilities. Rest Easy and InterContinental Hotel Group would be expected to meet Fort Carson's lodging requirements through operation and maintenance of the existing facilities and by renovating inadequate facilities and constructing new ones. As a result of the action, the lodging inventory at Fort Carson would increase from 173 units to 275 units. The action would generate new direct and indirect emissions from the construction and operation of the additional facilities.

General Conformity under the Clean Air Act section 176 has been evaluated according to the requirements of Title 40 of the *Code of Federal Regulations* Part 93, Subpart B. The requirements of this rule are applicable to the action because

> The highest total annual direct and indirect emissions from this Preferred Alternative or any of the alternatives have been estimated at 6.4 tons of CO, which would be below the applicability threshold value of 100 tons.

Supported documentation and emission estimates:

(X) Are Attached
( ) Appear in the NEPA Documentation
( ) Other (Not Necessary)

_____
Signature

_____
Title

_____
Date

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Emissions Calculations

Table A-1. Construction equipment use

Equipment type	Number of units	Days on site	Hours per day	Operating hours
Excavators Composite	3	115	4	1,380
Rollers Composite	3	173	8	4,152
Rubber Tired Dozers Composite	3	115	8	2,760
Plate Compactors Composite	6	115	4	2,760
Trenchers Composite	6	58	8	2,784
Air Compressors	6	115	4	2,760
Cement & Mortar Mixers	6	115	6	4,140
Cranes	3	115	7	2,415
Generator Sets	6	115	4	2,760
Tractors/Loaders/Backhoes	6	230	7	9,660
Pavers Composite	1	58	8	464
Paving Equipment	2	58	8	928

Table A-2. Construction equipment emission factors (lbs/hour)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Excavators Composite	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727	119.6
Rollers Composite	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601	67.1
Rubber Tired Dozers Composite	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409	239.1
Plate Compactors Composite	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021	4.3
Trenchers Composite	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688	58.7
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563	63.6
Cement and Mortar Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044	7.2
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715	128.7
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430	61.0
Tractors/Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599	66.8
Pavers Composite	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769	77.9
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063	12.6

Source: CARB 2011

Table A-3. Construction equipment emissions (tons per year)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Excavators Composite	0.2681	0.6095	0.0780	0.0006	0.0335	0.0335	55.0074
Rollers Composite	0.6008	1.1912	0.1838	0.0011	0.0832	0.0832	92.8012
Rubber Tired Dozers Composite	1.4684	3.0058	0.3353	0.0023	0.1296	0.1296	219.9772
Plate Compactors Composite	0.0242	0.0302	0.0047	0.0001	0.0019	0.0019	3.9687
Trenchers Composite	0.4714	0.7644	0.1718	0.0006	0.0639	0.0639	54.4934
Air Compressors	0.3479	0.7342	0.1134	0.0007	0.0518	0.0518	58.5187
Cement and Mortar Mixers	0.0617	0.0907	0.0156	0.0001	0.0061	0.0061	10.0024
Cranes	0.4839	1.2961	0.1432	0.0011	0.0576	0.0576	103.5770
Generator Sets	0.3184	0.6422	0.0989	0.0006	0.0396	0.0396	56.1133
Tractors/Loaders/Backhoes	1.3084	2.4941	0.3877	0.0025	0.1928	0.1928	215.1165
Pavers Composite	0.1363	0.2505	0.0455	0.0002	0.0178	0.0178	18.0811
Paving Equipment	0.0247	0.0492	0.0077	0.0001	0.0029	0.0029	5.8593
Total	**5.51**	**11.16**	**1.59**	**0.0100**	**0.68**	**0.68**	**893.52**

Table A-4. Painting

VOC content	0.84	lbs/gallon	
Coverage	400	sqft/gallon	
Emission Factor	0.0021	lbs/sqft	
Building/Facility	Wall Surface	VOC [lbs]	VOC [tpy]
All Buildings Combined	102,300	204,600	429.7
Total	**102,300**	**204,600**	**429.7**

Source: SCAQMD 1993

Table A-5. Delivery of equipment and supplies

Number of deliveries	2						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	230						
Total Miles	27,600						
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Emission Factor (lbs/mile)	0.0219	0.0237	0.0030	0.0000	0.0009	0.0007	2.7
Total Emissions (lbs)	605.8	654.5	82.6	0.7	23.6	20.4	75,056.4
Total Emissions (tpy)	**0.30**	**0.33**	**0.04**	**0.0004**	**0.01**	**0.01**	**37.53**

Source: CARB 2011

Table A-6. Surface disturbance

TSP Emissions	15.5	lb/acre				
PM_{10}/TSP	0.45					
$PM_{2.5}/PM_{10}$	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	**Area [acres]**	**TSP[lbs]**	**PM_{10}[lbs]**	**PM_{10}[tons]**	**$PM_{2.5}$[lbs]**	**$PM_{2.5}$[tons]**
Demolition	3.6	4,080	1,836	0.92	138	0.07
Total	**3.6**	**4,080**	**1,836**	**0.92**	**138**	**0.07**

Sources: USEPA 1995, 2005

Table A-7. Worker commutes

Number of Workers	30						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	58						
Total Miles	104,400.00						
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001	1.1
Total Emissions (lbs)	1,101.3	115.1	112.7	1.1	8.9	5.5	114,791.2
Total Emissions (tpy)	**0.55**	**0.06**	**0.06**	**0.0006**	**0.00**	**0.00**	**57.40**

Source: CARB 2011

Table A-8. Total construction emissions (tons per year)

Activity/Source	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Construction Equipment	5.51	11.16	1.59	0.0100	0.68	0.68	893.52
Painting	0.00	0.00	0.21	0.0000	0.00	0.00	0.00
Delivery of Equipment and Supplies	0.30	0.33	0.04	0.0004	0.01	0.01	37.53
Surface Disturbance	0.00	0.00	0.00	0.0000	0.92	0.07	0.00
Worker Commutes	0.55	0.06	0.06	0.0006	0.00	0.00	57.40
Total Construction Emissions	**6.37**	**11.54**	**1.90**	**0.01**	**1.61**	**0.76**	**988.44**

Table A-9. Boiler emissions

Gross Area	7,150	sf					
Heating Requirements	99,000	btu/sf					
Total Annual Heat Required	708	MMBTU					
Heating Value	150	MMBtu/1000 gallons					
Total #2 Oil Used	4.7	10^3 gallons					
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	
Emission Factor (lb/1000 gal)	5	24	2.493	0.1	2	2	
Total Emissions (tons)	**0.01**	**0.06**	**0.01**	**0.00**	**0.00**	**0.00**	

1. Emission factors for all pollutants were obtained from EPA's AP-42, Section 1.3. Conservatively assume that PM_{10} = PM.
2. Assumed sulfur concentration 1%
3. Heating requirements obtained from Commercial Buildings Energy Consumption Survey, DOE 2003

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APPENDIX B
Economic Impact Forecast System Model

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ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL

SOCIOECONOMIC IMPACT ASSESSMENT

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the ROI. In this regard, construction and renovation of lodging on Fort Carson would have a multiplier effect on the local and regional economy. With the proposed action, direct jobs would be created (e.g., construction jobs), generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed EIFS to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in EIFS are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS was developed under a joint project of the U.S. Army Corps of Engineers, the U.S. Army Environmental Policy Institute, and the Computer and Information Science Department of Clark Atlanta University. EIFS is implemented as an online system supported by the U.S. Army Corps of Engineers, Mobile District. The system is available to anyone with an approved user ID and password. U.S. Army Corps of Engineers staff is available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

THE EIFS MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the environmental assessment (EA) and environmental impact statement process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach on the

basis of the concentration of industries in the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements that describe the Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to relocate because of the Army's action; and the percent of military living on-post. Once those are entered into the EIFS model, it provides a projection of changes in the local economy. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the proposed action, including the direct and secondary changes in local employment and those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is the increase or decrease in the local population as a result of the proposed action.

The PAL program at Fort Carson would require renovation of existing lodging and construction of new lodging. The current working estimate for the cost of renovation and construction of these facilities (about $24,396,000) was divided over the projected 7-year initial development period and entered as the change in expenditures (about $3,485,100 per year).

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action's impact on the historical fluctuation in an area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV

technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

The following are the EIFS input and output data for the proposed action and the RTV values for the ROI.

EIFS REPORT

PROJECT NAME

Fort Carson PAL EA

STUDY AREA

08041 El Paso County, CO

FORECAST INPUT

Change In Local Expenditures	$3,485,100
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	$0
Percent of Military Living On-post	0

FORECAST OUTPUT

Employment Multiplier	2.90	
Income Multiplier	2.90	
Sales Volume – Direct	$3,485,100	
Sales Volume – Induced	$6,621,691	
Sales Volume – Total	$10,106,790	0.05%
Income – Direct	$729,113	
Income - Induced	$1,385,314	
Income – Total (place of work)	$2,114,427	0.02%
Employment – Direct	17	
Employment – Induced	33	
Employment – Total	50	0.02%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	8.20%	8.67%	4.90%	4.12%
Negative RTV	-8.48%	-7.91%	-5.03%	-1.97%

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	% Deviation
1969	633010	2766254	0	0	0
1970	723781	2989216	222962	-25831	-0.86
1971	796270	3153229	164014	-84779	-2.69
1972	946925	3626723	473493	224700	6.2
1973	1097191	3960859	334137	85344	2.15
1974	1205535	3917989	-42871	-291664	-7.44
1975	1277087	3805719	-112269	-361062	-9.49
1976	1389808	3919258	113539	-135254	-3.45
1977	1508145	3981503	62244	-186549	-4.69
1978	1739945	4280265	298762	49969	1.17
1979	2009729	4441501	161236	-87557	-1.97
1980	2259260	4382965	-58537	-307330	-7.01
1981	2644634	4654556	271591	22798	0.49
1982	2913118	4835776	181220	-67573	-1.4
1983	3211847	5171074	335298	86505	1.67
1984	3782955	5825751	654677	405884	6.97
1985	4186950	6238556	412805	164012	2.63
1986	4482033	6543768	305213	56420	0.86
1987	4773616	7399105	855336	606543	8.2
1988	5051992	6870709	-528395	-777188	-11.31
1989	5189577	6694554	-176155	-424948	-6.35
1990	5280258	6494717	-199837	-448630	-6.91
1991	5644154	6660101	165384	-83409	-1.25
1992	6133371	6992043	331941	83148	1.19
1993	6494407	7208792	216749	-32044	-0.44
1994	6995700	7555356	346564	97771	1.29
1995	7549212	7926672	371316	122523	1.55
1996	8218029	8382389	455717	206924	2.47
1997	8765477	8765477	383088	134295	1.53
1998	9765355	9570048	804571	555778	5.81
1999	10509235	10088865	518817	270024	2.68
2000	11535080	10727624	638759	389966	3.64

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	776165	3391841	0	0	0
1970	891848	3683332	291491	-37193	-1.01
1971	988832	3915775	232442	-96242	-2.46
1972	1161211	4447438	531663	202979	4.56
1973	1346597	4861215	413777	85093	1.75
1974	1489431	4840651	-20564	-349248	-7.21
1975	1604122	4780284	-60367	-389051	-8.14
1976	1754691	4948229	167945	-160739	-3.25
1977	1916814	5060389	112161	-216523	-4.28
1978	2213494	5445195	384806	56122	1.03
1979	2570646	5681128	235932	-92752	-1.63
1980	2946450	5716113	34985	-293699	-5.14
1981	3465251	6098842	382729	54045	0.89
1982	3840875	6375852	277011	-51673	-0.81
1983	4212903	6782774	406922	78238	1.15
1984	4900089	7546137	763363	434679	5.76
1985	5397130	8041724	495587	166903	2.08
1986	5768835	8422499	380776	52092	0.62
1987	6182205	9582417	1159918	831234	8.67
1988	6518155	8864691	-717727	-1046411	-11.8
1989	6853933	8841573	-23118	-351802	-3.98
1990	7072264	8698885	-142688	-471372	-5.42
1991	7539638	8896772	197888	-130796	-1.47
1992	8148912	9289760	392987	64303	0.69
1993	8620548	9568808	279049	-49635	-0.52
1994	9273409	10015282	446474	117790	1.18
1995	10114954	10620701	605419	276735	2.61
1996	10952703	11171757	551056	222372	1.99
1997	11689432	11689432	517675	188991	1.62
1998	12886643	12628910	939478	610794	4.84
1999	13737987	13188467	559557	230873	1.75
2000	14956694	13909726	721258	392574	2.82

EMPLOYMENT

Year	Value	Change	Deviation	% Deviation
1969	112063	0	0	0
1970	115410	3347	-3821	-3.31
1971	116375	965	-6203	-5.33
1972	127499	11124	3956	3.1
1973	139433	11934	4766	3.42
1974	140925	1492	-5676	-4.03
1975	137767	-3158	-10326	-7.5
1976	141308	3541	-3627	-2.57
1977	145299	3991	-3177	-2.19
1978	151772	6473	-695	-0.46
1979	161833	10061	2893	1.79
1980	167780	5947	-1221	-0.73
1981	176083	8303	1135	0.64
1982	182703	6620	-548	-0.3
1983	189619	6916	-252	-0.13
1984	206916	17297	10129	4.9
1985	218265	11349	4181	1.92
1986	224015	5750	-1418	-0.63
1987	227160	3145	-4023	-1.77
1988	233483	6323	-845	-0.36
1989	236168	2685	-4483	-1.9
1990	232985	-3183	-10351	-4.44
1991	238747	5762	-1406	-0.59
1992	247143	8396	1228	0.5
1993	257994	10851	3683	1.43
1994	274379	16385	9217	3.36
1995	285299	10920	3752	1.32
1996	297929	12630	5462	1.83
1997	309496	11567	4399	1.42
1998	320581	11085	3917	1.22
1999	331616	11035	3867	1.17
2000	341436	9820	2652	0.78

POPULATION

Year	Value	Change	Deviation	% Deviation
1969	228797	0	0	0
1970	238149	9352	275	0.12
1971	250170	12021	2944	1.18
1972	268911	18741	9664	3.59
1973	289925	21014	11937	4.12
1974	294270	4345	-4732	-1.61
1975	293947	-323	-9400	-3.2
1976	291540	-2407	-11484	-3.94
1977	301005	9465	388	0.13
1978	305086	4081	-4996	-1.64
1979	309248	4162	-4915	-1.59
1980	312043	2795	-6282	-2.01
1981	321747	9704	627	0.19
1982	332335	10588	1511	0.45
1983	343973	11638	2561	0.74
1984	354326	10353	1276	0.36
1985	370274	15948	6871	1.86
1986	382860	12586	3509	0.92
1987	394843	11983	2906	0.74
1988	396073	1230	-7847	-1.98
1989	397485	1412	-7665	-1.93
1990	397491	6	-9071	-2.28
1991	404419	6928	-2149	-0.53
1992	422062	17643	8566	2.03
1993	437105	15043	5966	1.36
1994	457150	20045	10968	2.4
1995	469757	12607	3530	0.75
1996	478381	8624	-453	-0.09
1997	486934	8553	-524	-0.11
1998	498062	11128	2051	0.41
1999	509044	10982	1905	0.37
2000	519258	10214	1137	0.22

****** End of Report ******

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Acronyms and Abbreviations

AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
AQCR	Air Quality Control Region
BMP	best management practice
BAAF	Butts Army Airfield
CCR	Code of Colorado Regulations
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COS	Colorado Springs Municipal Airport
CSU	Colorado Springs Utilities
dB	decibel
dBA	A-weighted decibel
de minimis	of minimal importance
DNL	day-night Sound Level
DoD	Department of Defense
EA	environmental assessment
EIFS	Economic Impact Forecast System
EO	Executive order
EPA	U.S. Environmental Protection Agency
FNSI	Finding of No Significant Impact
GHG	greenhouse gas
I	Interstate
ICRMP	Integrated Cultural Resources Management Plan
IHG	InterContinental Hotel Group
L_{eq}	equivalent sound level
MHPI	Military Housing Privatization Initiative
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
PAL	Privatization of Army Lodging
PCPI	per capita personal income
$PM_{2.5}$	fine particulate matter
PM_{10}	particulate matter
ROI	region of influence
RTV	rational threshold value
SO_2	sulfur dioxide
SO_x	sulfur oxides
SWPPP	Stormwater Pollution Prevention Plan
UPH	Unaccompanied personnel housing
U.S.C.	*United States Code*
VOC	volatile organic compounds