

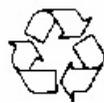
ENVIRONMENTAL ASSESSMENT IMPLEMENTATION OF BASE REALIGNMENT AND CLOSURE (BRAC) RECOMMENDATIONS AND OTHER ARMY TRANSFORMATION ACTIONS AT FORT LEAVENWORTH, KANSAS



Prepared for:
U.S. Army Corps of Engineers
Mobile District

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PUBLIC NOTICE OF AVAILABILITY

Implementation of Base Realignment and Closure Recommendations and Other Army Transformation Actions At Fort Leavenworth, Kansas Environmental Assessment and Finding of No Significant Impact

Pursuant to the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR 1500), and 32 CFR 651 Environmental Analysis of Army Actions, Fort Leavenworth, Kansas conducted an Environmental Assessment (EA) of the potential environmental and socioeconomic effects associated with implementing the Defense Base Closure and Realignment (BRAC) Commission recommendations for actions to occur at Fort Leavenworth.

The BRAC Commission-directed action at Fort Leavenworth is:

Realign Lackland Air Force Base, TX, Fort Knox, KY, and Fort Sill, OK by relocating the correctional function of each to Fort Leavenworth, KS, and consolidating them with the correctional function already at Fort Leavenworth, KS, to form a single Level II Midwest Joint Regional Correctional Facility.

The EA and Finding of No Significant Impact (FNSI) underwent a 30-day public comment period, August 21-September 21, 2006. This is in accordance with requirements specified in 32 CFR Part 651.14 Environmental Analysis of Army Actions. Throughout this process, the public could obtain information and/or submit written comments on the proposed action and the EA through Mr. Darrel Sisk, Parsons Senior Project Manager. Additional information could be obtained by contacting Mr. Sisk at (314) 434-2900 or mailing address:

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St. Louis, MO 63017-3427

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An electronic copy of the EA and Draft FNSI were posted on the following website: www.fortleavenworthbracea.com. Hardcopies of the EA and the Draft FNSI are available for review at the following libraries:

- Combined Arms Research Library, Fort Leavenworth; and
- Leavenworth Public Library at Spruce and 5th Street in Leavenworth, Kansas.

Comments on the EA and Draft FNSI were to be submitted no later than 30 days from the date of this publication.

FINDING OF NO SIGNIFICANT IMPACT
Implementation of BRAC Recommendations
at Fort Leavenworth, Kansas

This Finding of No Significant Impact (FNSI) addresses actions that are fully documented in the *Implementation of BRAC Recommendations at Fort Leavenworth, Kansas Environmental Assessment*. That Environmental Assessment (EA) is hereby incorporated by reference in this FNSI. Therefore, information in this FNSI will be limited to an overview of key elements of the EA and conclusions regarding the type and degree of environmental impacts that may occur as a result of the proposed action.

Proposed Action: The purpose of the proposed action is to implement the Defense Base Closure and Realignment (commonly referred to as BRAC 2005) Commission's recommendation pertaining to Fort Leavenworth.

The BRAC Commission recommended that a new Level II Joint Regional Correctional Facility (JRCF) be established at Fort Leavenworth and that the correctional facilities at Lackland Air Force Base, Texas, Fort Knox, Kentucky, and Fort Sill, Oklahoma be closed. To enable implementation of these recommendations, the Army proposes to provide necessary facilities to support the changes in force structure. The EA analyzes and documents environmental effects associated with the Army's proposed actions at Fort Leavenworth.

Alternatives Analyzed: Alternatives to implement the proposed action were developed and are analyzed in the EA. The alternatives are as follows:

- **Alternative 1 – No Action Alternative:** Under this alternative, organizations presently assigned to Fort Leavenworth would continue to train at and operate from the post. Fort Leavenworth would use its current inventory of facilities, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures, as circumstances independently warrant. The new Level II JRCF would be established at Fort Leavenworth, and other construction projects previously reviewed for potential impacts would be implemented and operated. However, the proposed Company Operations Facilities (COFs) and Tactical Equipment and Vehicle Maintenance facilities would not be constructed in support of the BRAC realignment. This alternative defines existing conditions at Fort Leavenworth (as of November 2005) as the "environmental baseline" that can be used as a benchmark for comparing the beneficial and adverse impacts associated with the other alternatives.
- **Alternative 2 – New Facilities near the United States Disciplinary Barracks (USDB) (Preferred Alternative):** This Alternative would consist of constructing and operating the proposed COFs and tactical equipment and

vehicle maintenance facilities to accommodate the restructured and incoming USDB units on the former USDB vocational farm site located in the northwestern corner of the installation. Redevelopment of the site for the proposed USDB COFs, Tactical Equipment and Vehicle Maintenance Facilities, and support elements would include closure, demolition and remediation (as appropriate) of the few remaining structures and foundations in the area, including:

- a building pad (from the former USDB Pesticide storage and mixing building area);
 - an agricultural sewage lagoon system;
 - the former USDB hog processing facility/sewage pump-house;
 - an old Quonset hut;
 - a maintenance support building, Building 383; and
 - military dog kennels.
- **Alternative 3 – Redevelopment and New Facilities near Buildings 109, 262, 263 and 264:** This alternative would consist of renovating and using the existing installation vehicle wash facility and Special Services Automotive Craft Shop area to accommodate the COFs and Tactical Equipment and Vehicle Maintenance facilities required in support of the JRCF. The existing vehicle wash facility would be relocated closer to the existing installation refueling station located in Building 152 at the southern edge of the proposed development area. The four existing historic buildings (109, 262, 263, and 264) would be renovated, repaired, and upgraded to accommodate the COFs, Tactical Equipment and Vehicle Maintenance, and support facilities.

Environmental Impacts of the Proposed Action: The EA analyzed 10 resource areas for each alternative: air quality, noise, geology and soils, water resources, biological resources (flora, fauna, threatened and endangered species, and unique and critical habitats), cultural resources, socioeconomics, transportation, utilities, and hazardous and toxic substances. Two resource categories, land use and aesthetics and visual resources, were eliminated from detailed consideration in the EA analysis. Elimination of these resource categories was based upon the exceptionally limited potential for either beneficial or adverse impacts associated with the identified alternatives. The analyses in the EA concluded that there would be no significant adverse or significant beneficial environmental impacts resulting from the proposed action or alternatives. Under the No Action Alternative, no new construction or renovation would occur at Fort Leavenworth. Therefore, there would be no anticipated changes in the existing baseline conditions, and impacts to all resources for this Alternative are negligible. The remaining resource impacts for Alternatives 2 and 3 are described below:

- **Air Quality:** Alternative 2 would have direct minor adverse impacts from construction dust/exhaust and negligible direct adverse impacts from operations dust/exhaust. Alternative 2 also would have indirect negligible adverse impacts from dust/exhaust migrating offsite. Alternative 3 would have direct negligible adverse impacts from construction and operations dust/exhaust, and indirect negligible adverse impacts due to construction and operations dust/exhaust migrating offsite.
- **Noise:** Alternative 2 would have direct minor adverse impacts from construction noise and negligible adverse impacts from operations noise. Alternative 2 would have indirect negligible adverse noise impacts from construction and operations noise migrating offsite. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2.
- **Geology and Soils:** Alternative 2 would have direct minor adverse impacts from soil erosion due to excavation/clearing. There also would be minor indirect adverse impacts from soil erosion due to increased impervious surface storm water runoff. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2.
- **Water Resources:** Alternative 2 would have direct minor adverse impacts from particulate suspension in streams and ponds due to construction, grading, excavation, and runoff. Alternative 2 also would have indirect minor adverse impacts to streams and ponds offsite when particulate suspension from construction, grading, excavation, and runoff migrate away from the proposed project site. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2.
- **Biological Resources:** Alternative 2 would have direct minor adverse impacts due to vegetation removal, wildlife displacement, and habitat removal during construction. It also would have minor adverse impacts to fish and wildlife due to increased sediment loading in streams and ponds. Also, Alternative 2 would have direct minor adverse impacts to wildlife due to noise of construction excavation. Alternative 2 would have indirect minor impacts to fish and wildlife offsite due to increased sediment loading in streams migrating away from the proposed project site. Alternative 3 would have direct negligible adverse impacts due to vegetation removal and wildlife displacement during construction/renovation. There would be minor adverse impacts to wildlife due to noise of construction and minor impacts to fish and wildlife due to increased sediment loading in streams from vegetation removal and construction excavation. Alternative 3 would have indirect minor adverse impacts to fish and wildlife offsite due to increased sediment loading in streams migrating away from the proposed project site. There was no evidence of threatened or endangered species at either Alternative 2 or Alternative 3 sites.
- **Cultural Resources:** Alternative 2 would have no direct or indirect adverse impacts on cultural resources. Alternative 3 would have direct minor adverse impacts due to renovation of buildings within the National Historic Landmark District that are on the National Register of Historic Places. It could potentially have a direct minor adverse

impact on archaeological resources within and around the nearby Quarry Creek. It would have no indirect impacts on cultural resources.

- **Socioeconomics:** Alternative 2 would have direct and indirect minor beneficial impacts on regional employment; income; business volume; housing; educational and community facilities; public services; and government revenues and expenditures. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2.
- **Transportation:** Alternative 2 would have direct minor adverse impacts to increased traffic during construction and operation, and indirect minor adverse impacts to increased road maintenance throughout operation of new facilities. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2.
- **Utilities:** Alternative 2 would have direct and indirect minor adverse impacts because it would decrease capacity of utility systems. Alternative 3 would have direct and indirect negligible impacts to utility capacity because it utilizes so many existing buildings that are currently in use.
- **Hazardous and Toxic Substances:** Alternative 2 would have direct minor adverse impacts due to the possibility of encountering and mishandling hazardous materials during construction. Alternative 2 would have indirect minor adverse impacts due to the potential of accidental spills of hazardous materials during construction and operation. Alternative 3 would have direct and indirect impacts similar to those of Alternative 2, due to renovation in addition to construction.

Mitigation Measures: No mitigation measures are required to reduce significant impacts to non-significant levels are part of this EA. However, as part of the proposed action, Fort Leavenworth has identified a number of Best Management Practices that would be implemented in association with the proposed construction activities, regardless of the alternative selected as part of Fort Leavenworth's ongoing, pro-active environmental program. Additionally, Fort Leavenworth would work with governmental agencies to comply with the respective regulations and avoid adverse impacts wherever possible. Best Management Procedures that would be undertaken as a result of the analysis in the EA and identification of potential adverse impacts are described below:

- **Air Quality:** Techniques would be employed to minimize fugitive dust emissions, such as the retention/reestablishment of vegetative cover in disturbed areas. In addition, all necessary construction and operating permits would be obtained from the Kansas Department of Health and Environment and the U.S. Environmental Protection Agency.
- **Biological Resources:** All soil disturbing activities are reviewed to ensure that impacts to wetlands are avoided or minimized. Trees and vegetation would be maintained and structural erosion control measures would be employed according to standards and specifications of the State of Kansas and/or the U.S. Environmental Protection Agency.

- **Cultural Resources:** If development is proposed in areas that have not been surveyed for cultural resources, Fort Leavenworth would commit to completing a Phase I survey of the areas prior to development. All procedures outlined in the Integrated Cultural Resources Management Plan would be followed including procedures to follow in the event of an unanticipated discovery during construction.
- **Geology and Soils:** Erosion controls detailed in Natural Resources Conservation Service Critical Area standards and those required by State of Kansas storm water discharge permits for construction sites would be used to reduce erosion and protect the water quality of receiving streams. The proponent would ensure that the construction contractor complies with established permits and Best Management Practice requirements. Actions occurring on the installation are required to meet existing management plans, standard operating procedures, permit requirements, as well as local, State, and Federal standards.
- **Hazardous and Toxic Substances:** Any spills or releases of petroleum, oil, and lubricant products, hazardous materials, pollutants, or contaminants would be handled in accordance with measures outlined in the Spill Prevention Control and Countermeasures Plan. If asbestos containing material is identified prior to renovation activities, the asbestos containing material would be abated by a Kansas Department of Health and Environment -approved and certified Asbestos Abatement contractor in accordance with Federal, State, and Army standards. The contractor shall not transport off-post, or dispose of, hazardous waste. Generated hazardous wastes at construction sites would be properly disposed of through Directorate of Installation Services Environmental Division Office, and all hazardous waste disposal charges shall be charged against that project.
- **Water Resources:** Best Management Practices would be implemented in accordance with applicable National Pollutant Discharge Elimination System permits and State and local requirements. All construction activities would be conducted in accordance with State, local, and Federal guidelines, regulations, and permits, and all identified and available Best Management Practices would be used to minimize potentially substantial effects.

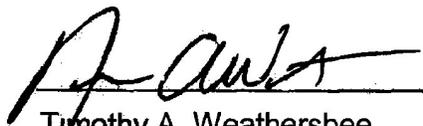
Conclusion: On the basis of the findings of the EA, conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality regulations, and Army Regulations, and after careful review of the potential impacts, I conclude that implementation of either of the Proposed Action alternatives or the No Action Alternative, conducted in a manner consistent with applicable regulatory requirements, would not result in a significant impact on the quality of the human or natural environment. Therefore, issuance of a FNSI is warranted, and preparation of an Environmental Impact Statement is not required.

For realignment actions directed by the BRAC Commission, it is noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions. Therefore, of the alternatives

considered, only Alternative 2 or Alternative 3 could be implemented. Implementation of either Alternative 2 or Alternative 3 would meet the needs of the Fort Leavenworth mission. Alternative 2, the Preferred Alternative, would construct the facilities at the optimal location and would allow for the greatest flexibility in the design of these facilities. However, since this would be new construction, this alternative would have greater environmental impacts and would not utilize existing structures. Implementation of Alternative 3 would locate the new facilities at a site that is less than optimal. Locating the new facilities away from the USDB would not be as convenient or efficient for various aspects of the Fort Leavenworth mission. The facility designs under Alternative 3 would be more limited since some existing facilities would be used. Some of these buildings are historic buildings and their historic character must be protected. However, this alternative would have fewer environmental impacts and would utilize existing facilities.

I have determined that the Army should implement Alternative 2 based upon the relative impacts identified during this analysis. Both Alternative 2 and Alternative 3 would have relatively minor environmental impacts that do not require an Environmental Impact Statement. Therefore the advantages of Alternative 2 for the Fort Leavenworth mission would outweigh the differences in impacts of the two alternatives.

Public Availability: The EA and draft FNSI underwent a 30-day public comment period, approximately August 21 through September 21, 2006, in accordance with requirements specified in 32 CFR Part 651.14(2) Environmental Analysis of Army Actions. Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA, or provide comments for consideration by the government. Comments provided to Mr. Darrel Sisk, at telephone number (314) 434-2900 ext 213, or by writing to Mr. Sisk at Parsons, 400 Woods Mill South, Suite 330, Chesterfield, MO 63017 were considered during review and signature of this Finding of No Significant Impacts.



Timothy A. Weathersbee
Colonel, Military Police
Garrison Commander
Fort Leavenworth



Date

ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF BASE REALIGNMENT AND CLOSURE (BRAC) RECOMMENDATIONS AND OTHER ARMY ACTIONS AT FORT LEAVENWORTH, KANSAS

Prepared by:

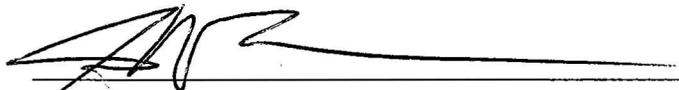
U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT



PETER F. TAYLOR, JR.
Colonel, Engineer
Commanding

Approved by:

FORT LEAVENWORTH, KANSAS



JOHN W. TOWERS
Colonel, U.S. Army
Garrison Commander
Fort Leavenworth

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment (BRAC) 2005 Commission recommended that certain BRAC actions occur at Fort Leavenworth, Kansas. These recommendations were approved by the President and accepted by Congress. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

ES.2 PROPOSED ACTION

The BRAC Commission-directed actions at Fort Leavenworth include realigning Lackland Air Force Base, Texas, Fort Knox, Kentucky, and Fort Sill, Oklahoma by relocating the correctional function of each to Fort Leavenworth, Kansas, and consolidating them with the correctional function already at Fort Leavenworth, Kansas, to form a single Level II Midwest Joint Regional Correctional Facility.

ES.2.1 Force Structure and Population Changes at Fort Jackson

As a part of BRAC 2005 and ongoing stationing actions, it is anticipated that four deployable Modified Table of Organization and Equipment (MTOE) and two Table of Distribution and Authorization (TDA) Correctional Command Military Police will be stationed at Ft. Leavenworth as part of a new mission to support the Midwestern Joint Regional Level II (medium security) Correctional Facility (JRCF). Three of the MTOE companies are already present at Fort Leavenworth. Along with the new mission of the medium security facility, additional DD Forms 1391 have been developed for the construction activities supporting the 705th and 604th Military Police (MP) Internment Battalions.

As a result of the force structure changes, there would be an increase of approximately 365 permanent party positions, including 94 civilians.

ES.2.2 Construction

The following construction projects are required to support the BRAC realignments: a new Confinement Facility (Prison) that would be built just south of the existing new U.S. Disciplinary Barracks (USDB) and just east of the former USDB vocational farm site; an addition to Harney Gym; an addition to the Youth Center; a Battalion Headquarters with classrooms, emergency operations center, arms room, family service center, and both organizational and non-organizational vehicle parking (3 total); Company Operations Facilities (COFs) with classrooms, emergency operations center, arms room, and both organizational and non-organizational vehicle parking (10 COFs total); Tactical Equipment and Vehicle Maintenance shops (2 total) including hardstands, oil storage, land vehicle fueling facility, and wash rack; an additional Unaccompanied Enlisted

Personnel Housing with Dining Facility; and relocated Military Working Dog Kennels (~10 dogs).

Supporting facilities include site utilities; electric service; security lighting; fire protection and alarm systems; water, sewer and gas; paving walks, curbs and gutters; storm drainage; access roads, parking and site improvements; and information systems.

Vehicle requirements for the MP Internment Battalions would include High-Mobility Multi-purpose Wheeled Vehicles (HMMWV) and administrative-type vehicles to support the training mission and administrative needs. Weapons systems provided to the relocated guard units would be similar to those weapons systems currently employed by other units at Fort Leavenworth. The necessary tactical equipment/vehicle support facilities required for implementation of the proposed action to support the battalion assigned to the Midwestern JRCF to be located near the current USDB include: Tactical Equipment and Vehicle Maintenance shops (2 total); Organizational vehicle parking hardstands; oil storage; vehicle fueling facility; and a tactical equipment and vehicle wash rack with an oil water separator.

The majority of projects within the proposed BRAC action at Fort Leavenworth are adequately covered in an existing Environmental Assessment (EA) entitled “Environmental Assessment for Construction of U.S. Disciplinary Barracks” (USACE, 1997). Additionally, since the completion of that EA, several additional Records of Environmental Consideration (RECs) have been prepared. These RECs address some of the other elements that would be required to support the BRAC actions.

This environmental assessment addresses the potential environmental and socioeconomic impact associated with the proposed development of COFs and tactical equipment maintenance facilities that were not addressed in the earlier reviews. Also included in this EA are the potential impacts of relocating the existing military working dog kennels and training site.

ES.3 ALTERNATIVES

ES.3.1 Alternative 1 - No Action Alternative

Under the No Action Alternative, facilities would not be provided nor renovated to support the MTOEs and TDA Correctional Command Military Police forces. Organizations presently assigned to Fort Leavenworth would continue to train at and operate from the post. Fort Leavenworth would use its current inventory of facilities, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures, as circumstances independently warrant.

For realignment actions directed by the BRAC Commission, it will be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions.

The No Action Alternative will be included as required by the CEQ regulations to identify the existing baseline conditions against which potential impacts will be evaluated. The No Action Alternative must be described because it is the baseline condition or the current status of the environment if the proposed action was not implemented.

ES.3.2 Alternative 2 – New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

This Alternative would consist of constructing and operating the proposed COFs and tactical equipment maintenance facilities to accommodate the restructured and incoming USDB units on the former USDB vocational farm site located in the northwestern corner of the installation. The current primary use for this area is a kennel and training area that are used in support of the Military Working Dog program. The farm was originally developed in 1908 to provide food to the USDB (CAC, 2003). The mission later developed into a vocational training facility, which allowed USDB inmates to learn farming operations. The USDB ceased this rehabilitation training and farming operation in 1995, and since then most of the barns and out buildings have been demolished.

If the vocational farm site were selected as part of the development, the Military Working Dog facility would be relocated to an available ball field near buildings 1007, 1008, and 1010.

Redevelopment of the site for the proposed USDB COFs, Tactical Equipment (Vehicle) Maintenance Facilities, and support elements would include closure, demolition and remediation (as appropriate) of the few remaining structures and foundations in the area, including: a building pad (from the former USDB Pesticide storage and mixing building area); an agricultural sewage lagoon system, consisting of two sewage lagoons; the former USDB hog processing facility/sewage pump-house; an old Quonset hut; a maintenance support building, Building 383; and dog kennels.

Removal of the existing agricultural sewage lagoon system and sewage pump-house would require that the project include connection of the remaining facilities and the proposed facilities to the installation's sanitary sewage collection system via a new lift station. Other infrastructure system enhancements would include: extension of domestic water service into the area for both domestic and fire fighting services; extension of the electrical service; extension of communications services; extension of natural gas lines for building heating; and construction of surface water detention areas to assist with the management of surface water runoff both during construction and operation of the proposed facilities.

Development of this alternative is not anticipated to require demolition or modification of Building 424, which is used in support of USDB maintenance operations.

ES.3.3 Alternative 3 – Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

This alternative would consist of renovating and using the existing installation vehicle wash facility and Special Services Automotive Craft Shop area to accommodate the COFs and Tactical Equipment and Vehicle Maintenance facilities required in support of the JRCF. The existing vehicle wash facility would be relocated closer to the existing installation refueling station located in Building 152 at the southern edge of the proposed development area.

The four existing historic buildings (109, 262, 263, and 264) would be renovated, repaired and upgraded to accommodate the COFs, Tactical Equipment (Vehicle) Maintenance, and support facilities. Existing hardstand/pavement in the area would be reused and fenced to provide secure parking areas for the approximately seven HMMWVs per company. Additional equipment maintenance bays would be constructed since this alternative does not provide all the space and facilities to adequately house and support the new operations.

ES.4 ENVIRONMENTAL CONSEQUENCES

ES.4.1 Alternative 1 - No Action Alternative

Under the No Action Alternative, the proposed action would not be implemented, and Fort Leavenworth would continue to use its current inventory of facilities. However, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions. If MTOEs and TDA Correctional Command Military Police forces do not arrive at Fort Leavenworth, that part of the mandate would not be met. If they do arrive without new construction and renovation, Fort Leavenworth would be forced into phasing the move, relocating to interim facilities, use of renovated facilities versus new construction, or alternative siting. This would result in crowding and other adverse social impacts. Under the No Action Alternative, no new construction or renovation would occur at Fort Leavenworth.

The No Action Alternative would not result in any significant direct or indirect impacts on air quality; noise; geologic, soil, water, biological, or cultural resources; utilities; and hazardous materials. There would be negligible adverse impacts from the personnel movements on the regional income and employment, and negligible beneficial impacts on business sales volume. The relocation of military personnel associated with the proposed action would result in negligible impacts to on-post or off-post housing, and dependent off-post school enrollment.

ES.4.2 Alternative 2 - New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

Alternative 2 would have minor adverse direct impacts to air quality, due to dust and exhaust emissions during construction. Negligible direct impacts would result from the construction and operation of the proposed COFs and equipment maintenance facilities, due to facility heating/cooling, vehicle exhaust, and petroleum, oil, and lubricant (POL) vapors. Alternative 2 would have negligible indirect impacts to air quality, due to the above emission drifting away from the project site and off-installation.

Alternative 2 would have minor adverse direct noise impacts, due to construction equipment and machinery, power tools, and the delivery of construction materials. Operation of the COFs and equipment maintenance facilities would also result in negligible adverse direct impacts.

Alternative 2 would have minor adverse direct impacts to soils, due to construction activities such as grading, vegetative clearing, excavation, and creation of impermeable surfaces.

There would be minor direct impacts to surface water quality associated with sediment runoff, including indirect adverse minor impacts off-post.

Under Alternative 2 there would be minor adverse direct adverse impacts to biological resources, resulting in minor short- and long-term direct adverse impacts to wildlife, due to displacement and habitat removal. There would be minor short-term direct impacts from noise disturbance to wildlife due to construction and demolition activities.

There would be no direct effects on wetlands under Alternative 2, since there are no jurisdictional wetlands occurring within or adjacent to the site.

Construction proposed as part of Alternative 2 would have minor adverse indirect impacts to fish and wildlife species, due to increased sediment, contaminants, and other construction-related debris in storm water runoff.

There are currently no known cultural resources located at this site, and it is located outside of the Fort Leavenworth National Historic Landmark District (NHL). Indirect impacts to cultural resources are not anticipated with implementation of Alternative 2.

Direct short-term minor beneficial economic impacts would be realized by the local economy during the construction phase of Alternative 2. Direct annual regional economic beneficial minor impacts would occur as a result of the increased operations under Alternative 2. Minor direct long-term impacts would occur in respect to both on-post and off-post population in the Fort Leavenworth region. The relocation of military personnel associated with Alternative 2 would result in short-term moderate adverse impacts to on-post housing, because, currently, there is not sufficient on-post housing for unaccompanied enlisted personnel. Adverse impacts of the local and regional off-post housing resources would be minor. The anticipated school enrollment increase of approximately 10 percent can be accommodated by the Leavenworth United School District #453 (which supports the majority of the off-post military personnel) and the on-post Fort Leavenworth School District #207 and would represent a minor impact on these local school districts. There are no anticipated adverse socioeconomic impacts of the Proposed Action related to environmental justice and Indian tribal government issues. Indirect short-term and long-term beneficial economic impacts would be realized by the regional and local economy during both the construction and operations phases of this alternative, due to additional indirect wages paid; an increase in indirect business volume.

Under Alternative 2, there would be short-term minor impacts to transportation at Fort Leavenworth from traffic increases on local roads during construction and long-term minor adverse impacts to traffic from stationing of the MTOEs and TDA Correctional Command Military Police forces at Fort Leavenworth.

Under Alternative 2, there would be minor impacts to utilities at Fort Leavenworth, since the additional demand is within current capabilities of all utilities (sewage, storm water, potable water, electrical, natural gas service, and solid waste.)

Under Alternative 2, there would be minor impacts due to the presence of hazardous materials in soils at the USDB Farm site. The existing sewage treatment lagoon system would have to be closed and lagoon material would have to be removed in order to use

the land without restrictions. During demolition of old buildings, there would be minor potential for exposure to asbestos particles, dust from lead paint, or Polychlorinated Biphenyls (PCB)-containing transformers. Construction equipment has a minor potential for spills or leaks of antifreeze, hydraulic fluid, oil, and fuel. During operation of the redeveloped site, there would be minor potential for accidental spills of hazardous and toxic materials such as antifreeze, grease, hydraulic fluid, oil, and fuel. A minor direct beneficial impact would result for the MP units, because needed weapons, supplies containing hazardous materials, and logistical equipment would be in close proximity to the USDB, minimizing the potential for spillage or accidents that could otherwise occur during transit to and from building 429.

ES.4.3 Alternative 3 – Redevelopment and New Facilities Near Buildings 109, 262, 263, and 264

Implementation of Alternative 3 would have less air quality direct impacts than Alternative 2 due to the use of existing buildings and less proposed construction. Negligible short-term impacts to air quality are anticipated from repair, revitalization and construction activities, as particulate matter is emitted during these activities. Both the dust emissions and exhaust emissions associated with these activities are temporary and are confined primarily to the immediate project areas. Negligible direct impacts to air quality as a result of the operation of the proposed COFs and equipment maintenance facilities are anticipated. Indirect adverse impacts would be less than in Alternative 2, due to the use of existing buildings and less proposed construction. Less dust and engine emissions created by construction activity would be carried offsite.

Alternative 3 would have minor adverse direct noise impacts similar to those discussed under Alternative 2. However, these impacts would be less than those of Alternative 2 due to the use of existing structures and limited construction projects. Operation of the COFs and equipment maintenance facilities would result in negligible adverse direct impacts. Given the location of the proposed development site, this alternative is not anticipated to result in adverse noise impacts on surrounding off-post uses.

Implementation of Alternative 3 would have only minor adverse impacts to soil resources due to the use of existing structures, including an asphalt-cement parking area over much of the site. The slight increase in impermeable surfaces following construction in this alternative would create faster rates of runoff that could lead to slightly increased erosion in surrounding areas.

Implementation of Alternative 3 would have only minor adverse impacts to water resources due to the use of existing structures. The renovation of existing buildings and limited construction projects of this alternative would result in much less soil disturbance. However, some of these areas have adjacent steep slopes that are prone to erosion. Construction vehicle discharges or spills washed down-slope during construction and during operation of the facility would have a short-term direct adverse effect on storm water quality within and near the project site. Indirect impacts under Alternative 3 would be similar to Alternative 2, except that an intermittent stream, Quarry Creek, is within 500 feet down-slope of the site. Any soil erosion, construction debris, vehicle discharges or spills washed down-slope during construction and/or operation of

the facilities could have a short-term and long-term indirect adverse affect on water quality within the creek.

Under Alternative 3 there would be negligible direct adverse impacts to biological resources, due to the existing area already being mostly developed. There would be minor short-term direct impacts from noise disturbance to wildlife due to construction and demolition activities. Federally-listed threatened and endangered species are not known to be present in the vicinity of the potential site for Alternative 3. Implementation of this alternative would not involve development within low-lying native prairie areas, the type of habitat where the western prairie fringed orchid is known to occur. Impacts to this species are not anticipated, and although Leavenworth County is within the native range of the species, the species has not been previously identified on Fort Leavenworth. There would be no direct effects on wetlands under Alternative 3, as there are no jurisdictional wetlands occurring within or adjacent to the site. Construction proposed as part of Alternative 2, would cause minor adverse indirect impacts to fish and wildlife species, due to increased water runoff and soil erosion down-slope of the site, particularly into Quarry Creek.

Alternative 3 would result in minor modification to four historic buildings at the installation (Buildings 109, 262, 263 and 264). It could potentially have a direct minor adverse impact on archaeological resources within and around the nearby Quarry Creek. Indirect impacts to cultural resources are not anticipated with implementation of Alternative 3.

Direct socioeconomic impacts would be similar to those associated with Alternative 2. Indirect socioeconomic impacts would be the same as those associated with Alternative 2.

Under Alternative 3, there would be short-term minor impacts to transportation at Fort Leavenworth as roads within the cantonment area would be used for construction equipment and vehicles during the project construction period leading to traffic congestion.

Under Alternative 3, there would be minor increases in utilities use on Fort Leavenworth from the additional buildings and people stationed at the installation. There would be a negligible increase in utility demands from the surrounding community.

Under this alternative, building renovation has the potential for minor short-term adverse hazardous materials impacts if persons are exposed to asbestos particles, dust from lead paint, or PCB ballasts in lights. Minor accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels may occur while renovating and operating these facilities.

ES.4.4 CUMULATIVE IMPACTS

- **Air Quality.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative impacts to air quality due to increases in fugitive dust from construction projects which could combine with particulate matter generated through training activities and other previously approved construction projects at the

installation. It is anticipated that cumulative impacts to air quality under Alternative 3 would be the same as those of Alternative 2.

- **Noise.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative noise impacts, when construction noise from the new COFs and equipment maintenance facilities combines with training activities and other previously approved construction projects at the installation. It is anticipated that cumulative noise impacts under Alternative 3 would be the same as those of Alternative 2.
- **Geology and Soils.** Implementation of Alternative 2 is anticipated to have short-term minor adverse cumulative impacts to geology and soils when construction erosion from the new COFs and equipment maintenance facilities combines with or overlaps erosion problems from training activities and other previously approved construction projects at the installation. It is anticipated that cumulative impacts to geology and soils under Alternative 3 would be the same as those of Alternative 2.
- **Water Resources.** Implementation of Alternative 2 is anticipated to have short-term and long-term minor adverse cumulative impacts to water resources when vegetation removal from the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation cause increased water runoff and soil erosion both on the installation and down-slope off of the Fort Leavenworth property. It is anticipated that cumulative impacts to water resources under Alternative 3 would be the same as those of Alternative 2.
- **Biological Resources.** Implementation of Alternative 2 is anticipated to have long-term minor adverse cumulative impacts to biological resources. The proposed Alternative 2 construction site is largely undeveloped; however the site is a previously disturbed area that was formerly used for agriculture. BRAC and non-BRAC construction projects occurring on the installation in combination with surrounding community development projects would result in minor adverse cumulative impacts to biological resources with the removal of flora and the displacement of fauna. It is anticipated that cumulative impacts to biological resources under Alternative 3 would be the same as those of Alternative 2.
- **Cultural Resources.** Implementation of Alternative 2 is anticipated to have no cumulative impacts to cultural resources. There are currently no known cultural resources located at the proposed Alternative 2 construction site.
- **Socioeconomics.** Implementation of Alternative 2 is anticipated to have direct and indirect short-term beneficial cumulative economic impacts to the regional and local economy during the construction phase. Beneficial long-term cumulative impacts would be realized by the increased operations of the BRAC-proposed action in combination with non-BRAC-proposed on-post actions and construction projects. Other on-post construction activities, in addition to those previously addressed, include the BRAC-related JRCF; three Battalion Headquarters; unaccompanied enlisted personnel housing; dining facility; and additions to the Harold Youth Center

and Harney Gymnasium. It is anticipated that cumulative socioeconomic impacts under Alternative 3 would be the same as those associated with Alternative 2.

- **Transportation.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative impacts to transportation. Traffic congestion could increase due to construction equipment entering and leaving the construction site combined with other BRAC and non-BRAC-related construction activities on the installation. It is anticipated that cumulative impacts to transportation under Alternative 3 would be the same as those of Alternative 2.
- **Utilities.** Implementation of Alternative 2 is anticipated to have moderate beneficial cumulative impacts to utilities. Implementation of BRAC-related construction projects, which includes updates and continued expansion of the utilities would have a long-term cumulative beneficial impacts on the installation when combined with updates to utilities on non-BRAC-related projects and off-installation utility improvements. It is anticipated that cumulative impacts to utilities under Alternative 3 would be the same as those of Alternative 2.
- **Hazardous and Toxic Substances.** Implementation of Alternative 2 is anticipated to have potential minor short-term adverse cumulative impacts from hazardous and toxic substances. Construction of the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased potential for adverse impacts from hazardous and toxic substances. It is anticipated that cumulative impacts from hazardous and toxic substances under Alternative 3 would be the same as those of Alternative 2.

ES.5 MITIGATION

No significant adverse or significant beneficial impacts are anticipated as a result of implementing any of the proposed action alternatives or the No Action Alternative. As part of the proposed action, Fort Leavenworth has identified a number of Best Management Practices (BMP) that would be implemented in association with the proposed construction activities, regardless of the Proposed Action Alternative selected. The BMPs are listed in subsection 4.13 of the EA. These measures are designed to avoid, reduce, or eliminate the impact of adverse impacts. For those adverse impacts that cannot be avoided, reduced or eliminated, the BMPs include features designed to protect, maintain, restore, or enhance environmental conditions.

ES.6 CONCLUSIONS

On the basis of the findings of the EA, conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality regulations, and Army Regulations, and after careful review of the potential impacts, implementation of either of the Proposed Action alternatives or the No Action Alternative, conducted in a manner consistent with applicable regulatory requirements, would not result in a significant impact on the quality of the human or natural environment. Fort Leavenworth is committed to implementing the mitigation measures

described herein for the proposed action. Therefore, issuance of a FNSI is warranted, and preparation of an Environmental Impact Statement is not required.

For realignment actions directed by the BRAC Commission, it is noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions. Therefore, of the alternatives considered, only Alternative 2 or Alternative 3 could be implemented. Implementation of either Alternative 2 or Alternative 3 would meet the needs of the Fort Leavenworth mission. Alternative 2, the Preferred Alternative, would construct the facilities at the optimal location and would allow for the greatest flexibility in the design of these facilities. However, since this would be new construction, this alternative would have greater environmental impacts and would not utilize existing structures. Implementation of Alternative 3 would locate the new facilities at a site that is less than optimal, due to distance from the USDB. However, this alternative would have fewer environmental impacts and would use existing facilities. It should be noted that additional maintenance bays would be constructed since this alternative does not provide all the space and facilities to adequately house and support the new operations. Since these buildings are on the National Register of Historic Places (NRHP), strict standards from the Kansas State Historical Society would be followed to ensure retention of detail such as masonry, wood, metal, roofs, porches, windows, moldings, stairways, and spatial relationships. Attempts would be made to use like materials when making interior structural changes to allow for the maneuverability limitations of the new types of vehicles.

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SECTION 1

PURPOSE, SCOPE AND NEED

1.1 INTRODUCTION

On September 8, 2005, the Defense Base Closure and Realignment (commonly referred to as BRAC) Commission recommended that certain actions occur at Fort Leavenworth, Kansas. These recommendations were approved by the President on September 15, 2005, and forwarded to Congress. Congress accepted the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission recommendations must now be implemented as provided for in the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC Commission recommended that a new Level II Joint Regional Correctional Facility (JRCF) be established at Fort Leavenworth and that the correctional facilities at Lackland Air Force Base, Texas, Fort Knox, Kentucky, and Fort Sill, Oklahoma be closed. To enable implementation of these recommendations, the Army proposes to construct facilities to support the changes in force structure. This environmental assessment (EA) analyzes and documents environmental effects associated with the Army's proposed actions at Fort Leavenworth. Details on the proposed actions are set forth in Section 2.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to implement the BRAC Commission's recommendation pertaining to Fort Leavenworth.

The proposed action is needed to improve the ability of the Nation to respond rapidly to challenges of the 21st Century. The Army is legally bound to defend the United States and its territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the United States. To carry out these tasks, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The following discusses four major initiatives that contribute to the Army's need for the proposed action.

- **Base Realignment and Closure.** In previous rounds of BRAC, the explicit goal was to save money and downsize the military in order to reap a "peace dividend." In the 2005 BRAC round, the Department of Defense (DoD) sought to reorganize its installation infrastructure to most efficiently support its forces, increase operational readiness, and facilitate new ways of doing business. Thus, BRAC represents more than cost savings. It supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC recommendations at Fort Leavenworth in

order to achieve the objectives for which Congress established the BRAC process.

- ***Army Transformation and the Army Modular Force.*** On October 12, 1999, the Secretary of the Army and the Chief of Staff articulated a vision about people, readiness, and transformation of the Army to meet challenges emerging in the 21st Century and the need to be able to respond more rapidly to different types of operations requiring military action. The strategic significance of land forces continues to lie in their ability to fight and win the Nation's wars and in their providing options to shape the global environment to the benefit of the United States and its allies. Transformation responds to the Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the Army published its Programmatic Environmental Impact Statement (EIS) for Army Transformation for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the Army would conduct a series of transformation activities affecting virtually all aspects of Army doctrine, training, leader development, organizations, installations, material, and Soldiers. On April 11, 2002, the Army issued a Record of Decision reflecting its intent to transform the Army. This EA evaluates a proposed action that agrees with the transformation process, which is designed to provide the Nation with combat forces that are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.

Consistent with guidance contained in the Army Campaign Plan, by 2007 the Army proposes to convert the force structure and equipment of its existing 33 combat brigades (and 10 new combat brigades) to "modular" brigade combat team (BCT) units of action (UAs). The Army would reorganize its division and corps headquarters to create modular units of employment (UEs) to provide command and control of organic, assigned, and attached forces. The Army's combat service and combat service support personnel and equipment would be reorganized into various types of Support Units of Action (SUAs).

Restructuring of Army organizations is needed to create forces that are more stand-alone and alike ("modular") while retaining their broad-spectrum capability. The Army needs to change its forces in order to: create a larger pool of units to fulfill strategic commitments; standardize combat unit designs; make units more adaptable to the range of missions – from peacekeeping to war; move from division-level (larger) to brigade-level (smaller) stand-alone units; make units capable of deploying more rapidly; and improve the Army's ability to tailor units and integrate them among components and with other Services and nations.

- ***Integrated Global Presence and Basing Strategy.*** At the request of the Chairman of the Joint Chiefs of Staff, combatant commanders submitted a series of recommendations for overseas basing plans for their respective areas of responsibility. The recommendations were part of an interagency assessment of the DoD's long-term overseas force projection and basing needs. The

assessment resulted in a series of recommendations known as the Integrated Global Presence and Basing Strategy (IGPBS), the blueprint outlining the size, character, and location of long-term overseas force presence. On the basis of the IGPBS results, the Secretary of Defense announced that some forces currently based overseas would return to the United States over a period of years. The 2005 BRAC recommendations take into account, and adopt some of, the basing recommendations of the IGPBS.

- **Installation Sustainability.** On October 1, 2004, the Secretary of the Army and the Chief of Staff issued The Army Strategy for the Environment. The strategy focuses on the interrelationships of mission, environment, and community. A sustainable installation simultaneously meets current and future mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. A sustained natural environment is necessary to allow the Army to train and maintain military readiness.

1.3 SCOPE

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army.¹ Its purpose is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives.

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the proposed action and alternatives in light of existing conditions and has identified relevant beneficial and adverse effects associated with the action. The proposed action is described in Section 2, and alternatives, including the No Action Alternative, are described in Section 3. Conditions existing as of November 2005, considered to be the "environmental baseline" conditions, are described in Section 4, Affected Environment and Environmental Consequences. The expected effects of the proposed action, also described in Section 4, are presented immediately following the description of the environmental baseline conditions for each resource addressed in the EA. Section 4 also addresses the potential for cumulative effects, and mitigation measures are identified where appropriate.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated (Sec. 2905(c)(2)(A), Public Law 101-510, as amended)." The law further specifies that

¹ Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 *Code of Federal Regulations* (CFR) Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.

in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider “(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected (Sec. 2905(c)(2)(B)).” The Commission’s deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for the directed actions.

This EA identifies, documents, and evaluates environmental effects of realignments at Fort Leavenworth. The potential effects of the proposed realignment at Lackland Air Force Base, Fort Knox, and Fort Sill will be considered during separate, stand-alone environmental reviews for those locations.

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 Native American groups, agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, and disadvantaged persons, are urged to participate in the decision making process.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by 32 Code of Federal Regulations (CFR) Part 651. Upon completion, the EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI), if appropriate. At the end of the 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or draft FNSI. As appropriate, the Army may then execute the FNSI and proceed with implementation of the proposed action. If it is determined prior to issuance of a final FNSI that implementation of the proposed action would result in significant impacts, the Army will publish in the Federal Register a Notice of Intent to prepare an EIS, commit to mitigation actions sufficient to reduce impacts below significance levels, or not take the action.

Throughout this process, the public may obtain information on the status and progress of the proposed action and the EA, or comment on the proposed action through the Mr. Darrel Sisk by calling Mr. Sisk, at telephone number (314) 434-2900 ext 213, or by writing to Mr. Sisk at Parsons, 400 Woods Mill South, Suite 330, Chesterfield, MO 63017.

1.5 REGULATORY FRAMEWORK

A decision on whether to proceed with the proposed action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, Fort Leavenworth is guided by relevant statutes (and their implementing regulations) and Executive Orders

(EO) that establish standards and provide guidance on environmental and natural resources management and planning. These include the Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act (NCA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Resource Conservation and Recovery Act (RCRA), and Toxic Substances Control Act (TSCA). 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 13101 (Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition), EO 13123 (Greening the Government Through Efficient Energy Management), EO 13148 (Greening the Government Through Leadership in Environmental Management), EO 13175 (Consultation and Coordination with Indian Tribal Governments), and EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds). These authorities are addressed in various sections throughout this EA when relevant to particular environmental resources and conditions. The full text of the laws, regulations, and EOs are available on the Defense Environmental Network and Information Exchange (DENIX) Web site at <http://www.denix.osd.mil>.

SECTION 2 PROPOSED ACTION

2.1 INTRODUCTION

The proposed action includes: implementation of the Commission's recommendations as mandated by the BRAC legislation, Public Law 101-510 and 107-107; and implementation of other Army transformation actions proposed to occur at Fort Leavenworth during the FY 05-11 timeframe that are sufficiently well defined for analysis at this time.

The BRAC Commission made the following recommendation concerning Fort Leavenworth:

“Realign Lackland Air Force Base, TX, Fort Knox, KY, and Fort Sill, OK by relocating the correctional function of each to Fort Leavenworth, KS, and consolidating them with the correctional function already at Fort Leavenworth, KS, to form a single Level II Midwest Joint Regional Correctional Facility.”

The United States Disciplinary Barracks (USDB) houses inmates with long-term sentences (over 5 years). The Regional Confinement Facilities house inmates with terms of 1 to 5 years. Due to the differences in the seriousness of the criminal offenses and the duration of sentences, a new prison/confinement facility is required to house this class of inmate.

As a part of BRAC 2005 and ongoing stationing actions, it is anticipated that four deployable Modified Table of Organization and Equipment (MTOE) and two Table of Distribution and Authorization (TDA) Correctional Command Military Police will be stationed at Ft. Leavenworth as part of a new mission to support the Midwestern Regional Level II (medium security) Correctional Facility. Three of the MTOE companies are already present at Fort Leavenworth. Along with the new mission of the medium security facility, additional DD Forms 1391 have been developed for the construction activities supporting the 705th and 604th Military Police (MP) Internment Battalions.

The following construction projects are required to support the BRAC realignments:

- new Confinement Facility (Prison);
- an addition to Harney Gym;
- an addition to the Youth Center;
- Battalion Headquarters with classrooms, emergency operations center, arms room, family service center; and both organizational and non-organizational vehicle parking (3 total);

- Company Operations Facilities (COFs) with classrooms, emergency operations center, arms room, and both organizational and non-organizational vehicle parking (10 COFs total);
- Tactical Equipment and Vehicle Maintenance shops (2 total) including hardstands, oil storage, land vehicle fueling facility, and wash rack;
- additional Unaccompanied Enlisted Personnel Housing with Dining Facility;
- Military Working Dog Kennels (~10 dogs); and
- An Internment/Resettlement Training Area.

Supporting facilities include site utilities; electric service; security lighting; fire protection and alarm systems; water, sewer and gas; paving walks, curbs and gutters; storm drainage; access roads, parking and site improvements; and information systems. Supporting costs are high because of the remote site location. Substantial earthwork is required due to the topography of Fort Leavenworth and utilities servicing the area. Access for the disabled would be provided in public areas only. Heating, ventilation, and air conditioning (HVAC) would be provided by self-contained geothermal units. Air conditioning is estimated at 485 tons. Intrusion Detection Systems (IDS) and Energy Monitoring and Control Systems (EMCS) would be provided. Anti-Terrorism/Force Protection (ATFP) measures include blast resistant windows and doors, structural reinforcement, mass notifications, and HVAC controls. Two buildings would be demolished. Together these buildings contain approximately 1,632 square feet (SF) of space.

2.2 FORCE STRUCTURE

Force structure refers to the numbers, size, and composition of units comprising Army forces. BRAC recommendations at Fort Leavenworth would add force structure through the reassignment of units from other installations.

Total personnel changes would be an increase of approximately 365 permanent party positions, including 94 civilians.

2.3 GARRISON FACILITIES

Implementation of the proposed action would require construction of the following Garrison facilities to accommodate the personnel that would staff the prison after their relocation from Lackland Air Force Base, Fort Knox, and Fort Sill to the new Level II Midwest JRCF at Fort Leavenworth:

- new Confinement Facility (Prison);
- an addition to Harney Gym;
- an addition to the Youth Center;
- an addition to Unaccompanied Enlisted Personnel Housing with a Dining Facility;

- 3 Battalion Headquarters with classrooms, emergency operations center, arms room, family service center; and both organizational and non-organizational vehicle parking;
- 10 COFs with classrooms, emergency operations center, arms room, and both organizational and non-organizational vehicle parking; and
- relocation of the current installation Military Working Dog Kennels.

2.4 TRAINING FACILITIES

Implementation of the proposed action would require construction of an Internment/Resettlement Training Area. The training area for the new Internment/Resettlement MP units on Fort Leavenworth would consist of a gravel area of approximately 3 acres. The training area would be fenced and divided into quarters. Each quarter would also be fenced and have different configurations. There would be one small building (16 feet x 32 feet). Four poles with floodlights would illuminate the site. The training area would be surrounded by a 24-foot-wide gravel road.

2.5 WEAPONS SYSTEMS AND VEHICLES

Vehicle requirements for the MP Internment Battalions would include High-Mobility Multi-purpose Wheeled Vehicles (HMMWV) and administrative-type vehicles to support the training mission and administrative needs. Weapons provided to the relocated guard units would be similar to those weapons currently employed by other units at Fort Leavenworth.

The necessary vehicle facilities required for implementation of the proposed action to support the battalion assigned to the Midwestern JRCF to be located near the current USDB include:

- Tactical Equipment and Vehicle Maintenance shops (2 total);
- Organizational vehicle parking hardstands;
- Oil storage and hazardous waste storage;
- Vehicle fueling facility; and
- Tactical equipment and vehicle wash rack with an oil water separator.

The only weapons required for implementation would be the MK-19 weapon system that is usually mounted on HMMWVs, trucks, or M88 Recovery Vehicles.

2.6 NEPA REQUIREMENTS

The majority of projects within the proposed BRAC action at Fort Leavenworth are adequately covered in an existing EA entitled "Environmental Assessment for Construction of U.S. Disciplinary Barracks" (USACE, 1997). The 1997 EA for the construction of the USDB addressed the construction of the current USDB and also the possibility of expansion at a later time. Additionally, since the completion of that EA, several additional Records of Environmental Consideration (RECs) have been

prepared. These RECs address some of the other elements that would be required to support the BRAC actions. Table 2.1 summarizes the various elements required to support the BRAC realignments along with the status of prior environmental reviews.

Project Element	Prior Environmental Review	Environmental Review in this Document
Joint Regional Correction Facility Expansion	Yes ^a	No ⁱ
Battalion Headquarters (3 total)	Yes ^b	No ⁱ
Company Operations Facilities (10 total)	No	Yes
Tactical Equipment and Vehicle Maintenance Facilities (2 total) with associated organization and non-organization vehicle parking	No	Yes
Oil Storage Facility	No	Yes
Organizational Vehicle Fueling Facility	No	Yes
Tactical Equipment and Vehicle Wash Facility (Rack) with an oil-water separator	No	Yes
Unaccompanied Enlisted Personnel Housing – Single Soldiers Barracks	Yes ^c	No ⁱ
Dining Facility	Yes ^d	No ⁱ
Addition to the Harold Youth Center (Building 1056)	Yes ^e	No ⁱ
Addition to the Harney Gymnasium (Building 664)	Yes ^f	No ⁱ
Military Working Dog Kennels (~10 dogs) Construction/Relocation	Yes ^g	No ⁱ
An Internment/Resettlement Training Area	Yes ^h	No ⁱ
Note a: Action covered in 1997 DB EA. Proposed action duration: FY 2007. Note b: Action covered in 1997 DB EA. Proposed action duration: FY 07-08. Note c: Action covered in 2000 Master Plan EA. Proposed action duration: FY 07-08. Note d: Action covered in 2000 Master Plan EA. Proposed action duration: FY 07-08. Note e: Action covered in a Categorical Exclusion. Proposed action duration: FY 07-08. Note f: Action covered in a Categorical Exclusion. Proposed action duration: FY 07-08. Note g: Action covered in a Categorical Exclusion. Proposed action duration: FY 07-08. Note h: Action covered in a Categorical Exclusion. Proposed action duration: FY 05. Note i: All projects would be considered in the cumulative impacts analysis for this project, but the primary environmental review for this element was completed previously <i>Source: Parsons</i>		

As summarized on the table, a majority of the proposed projects have already been evaluated for potential environmental impacts in separate environmental reviews. The locations of these projects are shown in Figure 2.1. Projects that have not been addressed in prior environmental reviews include the COFs, the tactical equipment and vehicle maintenance shops, the oil storage facility, fueling facilities including fuel tanks, the organization vehicle parking area, and the vehicle wash rack. This EA will provide a review of the potential direct and indirect impacts of these project elements; as well as review the potential cumulative impacts of all of the projects.

Section 3 describes the selection and description of Alternatives for these projects, and Section 4 discusses the existing environment and environmental consequences of these projects.

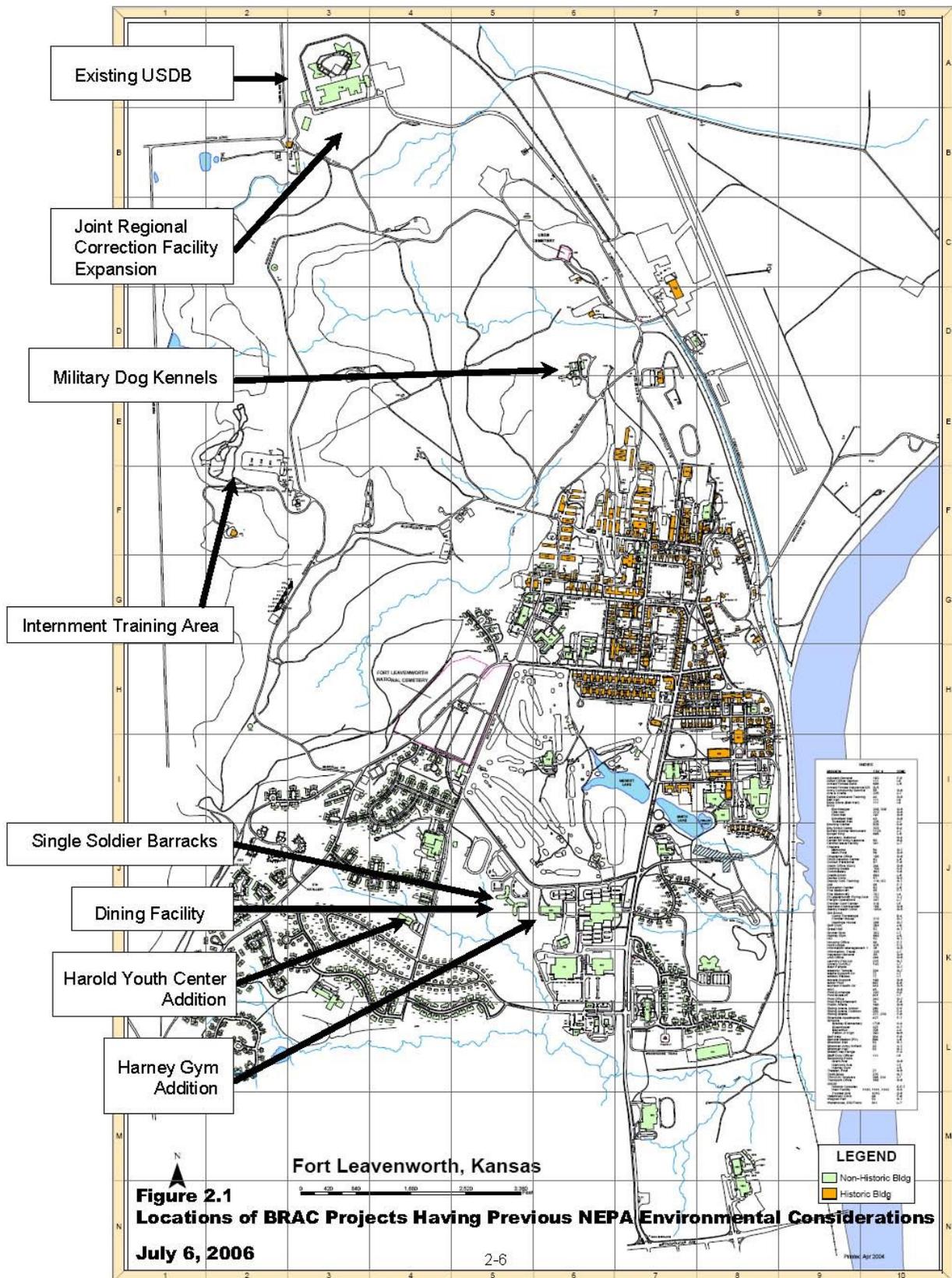
2.7 SCHEDULE

Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011².

Implementation of the proposed action would occur over a span of approximately 4 years at Fort Leavenworth. Establishment of new units would occur as facilities for their operations and support become available.

The schedule for implementation of the proposed action must balance facilities construction timeframes and planned arrival dates of inbound units and stand-up dates of newly-established, all within the 4-year limitation of the BRAC law. Realignment earlier is not feasible in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

² Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than two years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or realignments; and ... complete all such closures and realignments no later than the end of the 6-year period beginning on the date on which the President transmits the report ... " The President took the specified action on September 15, 2005.



SECTION 3 ALTERNATIVES

3.1 INTRODUCTION

A basic principle of NEPA is that an agency should consider reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be ready for decision-making (any necessary preceding events having taken place), affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following discussion identifies alternatives considered by the Army and identifies whether they are feasible and, hence, subject to detailed evaluation in this EA.

Alternatives for implementation of the proposed action have been examined according to three variables: means to physically accommodate realigned units, siting of new construction, and schedule. This section presents the Army's development of alternatives and addresses alternatives available for the proposed action. The section also describes the No Action Alternative.

3.2 DEVELOPMENT OF ALTERNATIVES

3.2.1 Means to Accommodate Realigned or Relocated Units

Realignment or relocation of units and the establishment of new units involve ensuring that the installation has adequate support facilities for personnel and their operational requirements. The Army considered four means of meeting increased space requirements, as follows:

- Use of existing facilities;
- Modernization or renovation of existing facilities;
- Leasing of off-post facilities; and/or
- Construction of new facilities.

Army Regulation 210-20, *Master Planning for Army Installations*, establishes Army policy to maximize use of existing facilities. The regulation directs that new construction will not be authorized to meet a mission that can be supported by existing underutilized adequate facilities, provided that the use of such facilities does not degrade operational efficiency. Under this policy, selection and use of facilities to support mission requirements adheres to the bulleted choices above in the order in which they are listed. That is, if there are adequate existing facilities to accommodate requirements, and absent other overriding considerations, further examination of renovation, leasing, or construction alternatives is not required. Similarly, if a combination of use of existing facilities and renovation satisfies the Army's needs, leasing or new construction need

not be addressed. New construction may proceed only when use of existing facilities, renovation, leasing, or a combination of such measures are inadequate to meet mission requirements.

3.2.2 Siting of New Construction

The Army considers both general and specific siting criteria for construction of new facilities.

General siting criteria include:

- consideration of compatibility between the functions to be performed and the installation land use designation for the site;
- adequacy of the site for the function required, proximity to related activities;
- distance from incompatible activities, availability and capacity of roads;
- efficient use of property;
- development density;
- potential future mission requirements; and
- special site characteristics, including environmental incompatibilities.

Specific siting criteria include consideration of location of the workforce and efficient, streamlined management of functions. Collocation of similar types of functions, as opposed to dispersion, permits more efficient use of equipment, vehicles, and other assets.

3.2.3 Schedule

Alternatives for scheduling of proposed realignment actions are principally affected by three factors: the availability of facilities to house realigned personnel and functions, efforts to minimize potential disruption of mission activities based on the number of personnel involved in the relocation or the amount of work to be performed, and early realization of benefits to be gained by completion of the realignments. In most cases, minor shifts in schedule would not produce different environmental results.

3.3 PROPOSED ACTION IMPLEMENTATION ALTERNATIVES

The proposed actions are mandated by the BRAC law. The following BRAC-directed alternatives are included in the NEPA document.

3.3.1 No Action Alternative

The No Action Alternative will be included as required by the CEQ regulations to identify the existing baseline conditions against which potential impacts will be evaluated. The No Action Alternative must be described because it is the baseline condition or the current status of the environment if the proposed actions were not implemented. For realignment actions directed by the BRAC Commission, it will be noted that for the

No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions.

Under the No Action Alternative, Fort Leavenworth would not implement the proposed action. Organizations presently assigned to Fort Leavenworth would continue to train at and operate from the post. Fort Leavenworth would use its current inventory of facilities, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures, as circumstances independently warrant.

3.3.2 BRAC-Directed Relocation Alternatives

Although Public Law 101-51 eliminates the need to decide whether to realign a unit or activity to another location, it does not eliminate the requirement for an environmental analysis of how the realignment is conducted at the designated installation. Alternatives of how the units or activities could be realigned might include: phasing the move, relocating to interim facilities at the gaining installation, use of renovated facilities versus new construction, or alternative siting of construction at the gaining installation.

3.3.2.1 Proposed BRAC-Directed Relocation Action

Level II Joint Regional Correctional Facility

A new Level II JRFC is to be established at Fort Leavenworth that would allow for the closure of correctional facilities at Lackland Air Force Base, Fort Knox, and Fort Sill. The new facility would increase the confinement mission of Fort Leavenworth and necessitate a number of new construction projects. As discussed in Section 2, the following construction projects would be analyzed in this EA:

- the construction and operation of 10 COFs; and
- the construction and operation of two new Tactical Equipment and Vehicle Maintenance Facilities and associated facilities.

3.4 DESCRIPTION OF POTENTIAL BRAC-DIRECTED ALTERNATIVES

Two alternatives to implement the proposed action, as well as the No Action Alternative, were selected for analysis in this EA. These alternatives are based on different locations on Fort Leavenworth that could accommodate the proposed action. These are described below and the locations are shown in Figure 3.1. Section 4 of this EA provides more information on the environmental and socioeconomic considerations associated with the potential development and implementation of these alternatives.



 0.5 0.25 0 0.5 Miles 	PARSONS ENVIRONMENTAL ASSESSMENT BRAC		
	LOCATION ALTERNATIVES FORT LEAVENWORTH, KANSAS		
	DATE: JUNE 2006	FIGURE 3.1	

3.4.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, organizations presently assigned to Fort Leavenworth would continue to train at and operate from the post. Fort Leavenworth would use its current inventory of facilities, though routine replacement or renovation actions could occur through normal military maintenance and construction procedures, as circumstances independently warrant. The new Level II JRCF would be established at Fort Leavenworth, and other construction projects previously reviewed for potential impacts would be implemented and operated. However, the proposed COFs and Tactical Equipment and Vehicle Maintenance facilities would not be constructed in support of the BRAC realignment.

This alternative defines existing conditions at Fort Leavenworth (as of November 2005) as the “environmental baseline” that can be used as a benchmark for comparing the beneficial and adverse impacts associated with the other alternatives.

3.4.2 Alternative 2 - New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

This Alternative would consist of constructing and operating the proposed COFs and equipment maintenance facilities to accommodate the restructured and incoming USDB units on the former USDB vocational farm site located in the northwestern corner of the installation. The current primary use for this area is a kennel and training area that are used in support of the Military Working Dog program. The primary development site is at the former USDB vocational farm. The farm was originally developed in 1908 to provide food to the USDB (CAC, 2003). The mission later developed into a vocational training facility, which allowed USDB inmates to learn farming operations. The USDB ceased this rehabilitation training and farming operation in 1995, and since then most of the barns and out buildings have been demolished.

If the vocational farm site were selected as part of the development, the Military Working Dog facility would be relocated to an available ball field near buildings 1007, 1008, and 1010. The ball field is currently being used in support of a USDB Barracks facility being used to house low-risk inmates. These inmates are scheduled to be relocated into the new JRCF once it is available, eliminating the need for the ball field.

Redevelopment of the site for the proposed USDB COFs, Tactical Equipment and Vehicle Maintenance Facilities, and support elements would include closure, demolition and remediation (as appropriate) of the few remaining structures and foundations in the area, including:

- a building pad (from the former USDB Pesticide storage and mixing building area);
- an agricultural sewage lagoon system;
- the former USDB hog processing facility;

- a sewage pump-house;
- an old Quonset hut;
- a maintenance support building, Building 383; and
- dog kennels.

Removal of the existing agricultural sewage lagoon system and sewage pump-house would require that the project include connection of the currently remaining facilities and the proposed facilities to the installation's sanitary sewage collection system via a new lift station. Other infrastructure system enhancements would include:

- extension of domestic water service into the area for both domestic and fire fighting services;
- extension of the electrical service;
- extension of communications services;
- extension of natural gas lines for building heating; and
- construction of surface water detention areas to assist with the management of surface water runoff both during construction and operation of the proposed facilities.

Development of this alternative is not anticipated to require demolition or modification of Building 424, which is currently used in support of USDB maintenance operations.

3.4.3 Alternative 3 – Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

This alternative would consist of renovating and using the existing installation vehicle wash facility and Special Services Automotive Craft Shop area to accommodate the COF and Tactical Equipment and Vehicle Maintenance facilities required in support of the JRCF. The existing vehicle wash facility would be relocated closer to the existing installation refueling station located in Building 152 at the southern edge of the proposed development area.

The four existing historic buildings (109, 262, 263, and 264) would be renovated, repaired and upgraded to accommodate the COFs, Tactical Equipment and Vehicle Maintenance, and support facilities. Existing hardstand/pavement in the area would be reused and fenced to provide secure parking areas for the approximately seven HMMWVs per company. Additional equipment maintenance bays would be constructed since this alternative does not provide all the space and facilities to adequately house and support the new operations.

The existing structural column spacing within Buildings 109, 262, 263, and 264 are not conducive to supporting maintenance on HMMWVs and other wider-wheelbase vehicles. Although vehicles could fit between the columns, there would not be safe turning radius, and the potential for vehicles colliding with the columns would be higher

than desired. Use of the existing buildings to support the other elements, coupled with the construction of new maintenance bays, should eliminate this concern.

SECTION 4

AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

The following discussion describes the affected environment within all of the Fort Leavenworth locales that are being considered in this analysis. Following a description of the affected environment, the discussion addresses the potential environmental consequences or impacts of each of the potential implementation alternatives evaluated. The discussion focuses on aspects of the environment that could be impacted by the proposed construction projects, maintenance and operation of the proposed facilities and support elements, and implementation of new activities associated with the presence of the new activities at Fort Leavenworth.

The discussion is structured using the following general environmental resource categories:

- Land Use;
- Aesthetics and Visual Resources;
- Air Quality;
- Noise;
- Geology and Soils;
- Water Resources;
- Biological Resources;
- Cultural Resources;
- Socioeconomics;
- Transportation;
- Utilities; and
- Hazardous and Toxic Substances.

As discussed in Section 3, the alternatives being evaluated for environmental consequences in this EA include the following:

- Alternative 1, No Action Alternative;
- Alternative 2, New Facilities near the USDB, Preferred Alternative;
- Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264.

4.1.1 Initial Resource Category Screening

Based upon an initial screening of potential affects of implementing each of the viable implementation alternatives, the following resource categories have been eliminated from detailed consideration in the analysis. Elimination of these resources was based on the exceptionally limited potential for either beneficial or adverse impacts associated with the identified alternatives.

- **Land Use.** The initial screening with respect to Land Use considered the following:
 - The identified development alternative sites are located within compatible land use areas. The site near the USDB is planned for expansion and support of the USDB, while the area near Buildings 109, 262, 2630 and 264 is currently used for tactical equipment maintenance, parking and refueling.
 - The proposed development is consistent with the types of development and activities conducted within proximate areas.

Consequently, detailed consideration of potential land use impacts has not been included in this analysis.

- **Aesthetics and Visual Resources.** The initial screening with respect to Aesthetics and Visual Resources considered the following:
 - The identified development alternatives would include the construction of facilities in accordance with the Fort Leavenworth Installation Design Guide.
 - Use of Fort Leavenworth Installation Design Guide standards within the potential development sites is consistent between potential development alternatives thereby resulting in no difference in potential development standards or costs.
 - Potential development would be consistent with other similar development in the area, thereby not detracting from the proximate activities.

Consequently, detailed consideration of potential aesthetic and visual resource impacts has not been included in this analysis.

4.1.2 Definition of Key Terms

4.1.2.1 Environmental Baseline

The existing environmental baseline conditions have been established based upon conditions at the installation as of November 2005.

4.1.2.2 Impact

An environmental consequence or impact (hereinafter referred to in this document as an impact) is defined as a noticeable change in a resource from the existing environmental baseline conditions caused by or resulting from by the proposed action. The terms “impact” and “effect” are synonymous as used in this EA. Impacts may be determined to be beneficial or adverse and

may apply to the full range of natural, aesthetic, cultural, and economic resources of the installation and its surrounding environment.

4.1.2.3 Direct Versus Indirect Impacts

Where applicable, the analysis of impacts associated with each course of action has been further divided into direct and indirect impacts. Definitions and examples of direct and indirect impacts as used in this document are as follows:

- **Direct Impacts.** A direct impact is caused by the proposed action and occurs at the same time and place. Both short-term and long-term direct impacts can be applicable.
- **Indirect Impacts.** An indirect impact is caused by the proposed action and occurs later in time or is farther removed in distance, but is still reasonably foreseeable.
- **Application of Direct Versus Indirect Impacts.** For direct impacts to occur, a resource must be present in a particular area. For example, if highly erodible soils were disturbed due to construction, there would be a direct impact to soils from erosion at the development site. Sediment-laden runoff might indirectly affect surface water quality in adjacent areas downstream from the development site.

4.1.2.4 Impact Characterization

Impacts are characterized by their relative magnitude. Adverse or beneficial impacts that are significant are the highest level of impacts. Conversely, negligible adverse or beneficial impacts are the lowest level of impacts. In this document, five descriptors are used to characterize the level of impacts. In order of degree of impact, the descriptors are as follows:

- No Impact,
- Negligible Impact,
- Minor Impact,
- Moderate Impact, and
- Significant Impact.

The following figure graphically represents this hierarchy of impacts.



4.1.2.5 Significance

The term “significant,” as defined in Section 1508.27 of the Regulations for Implementing NEPA (40 CFR 1500), requires consideration of both the context and intensity of the impact evaluated. Significance can vary in relation to the context of the proposed action. Thus, the significance of an action must be evaluated in several contexts that vary with the setting of the proposed action. For example, context may include consideration of effects on a national, regional, and/or local basis depending upon the action proposed. Both short-term and long-term effects may be relevant.

In accordance with the CEQ implementing guidance, impacts are also evaluated in terms of their intensity or severity. Factors contributing to the evaluation of the intensity of an impact include, but are not limited to, the following:

- Because an impact may be both beneficial and adverse, a significant impact may exist even if, on balance, the impact is considered beneficial.
- The degree to which the action affects public health or safety.
- Unique characteristics of the geographic area where the action is proposed such as proximity to parklands, historic or cultural resources, wetlands, prime farmlands, wild and scenic rivers or ecologically critical areas, and rare flora and fauna species.
- The degree to which the effects on the quality of the human environment are likely to be controversial.
- The degree to which the effects of the action on the quality of the human environment are likely to be highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) or may cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action may adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the (ESA of 1973).

- Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment (i.e., CWA and ESA, etc.).

As noted in the following analysis, none of the potential impacts identified in this EA are considered significant.

4.2 AIR QUALITY

4.2.1 Affected Environment

Air quality is determined within regional boundaries and by pollutant concentration guidelines as defined and enforced by the United States Environmental Protection Agency (USEPA) and state agencies as authorized under the Clean Air Act (CAA). Pursuant to the CAA, USEPA has established National Ambient Air Quality Standards (NAAQS), ambient air concentrations of the criteria air pollutants (sulfur dioxide, carbon monoxide, ozone, nitrogen oxides, lead, and respirable particulate matter) intended to protect the public health and welfare with an acceptable margin of error. Air quality at Fort Leavenworth is regulated by the Kansas Department of Health and Environment (KDHE), as well as AR200-1. Fort Leavenworth and the entire State of Kansas are currently classified as attainment areas (USEPA, 2006).

4.2.1.1 Ambient Air Quality Conditions

Ambient air is defined as the outside air to which the general public is exposed. Measuring pollutant levels in ambient air is generally how outdoor air quality is evaluated (KDHE, 2004). Standards are established for two levels of air quality protection. Primary standards establish air quality levels that protect public health from known or anticipated adverse effects of a pollutant. Secondary Standards establish air quality levels that protect agricultural crops and livestock from injury; materials and property from deterioration; and the environment from adverse impacts, such as reduced visibility (CAC, 1999a).

The CAA established NAAQS, and they are provided on Table 4.1.

Table 4.1 National Ambient Air Quality Standards (NAAQS)			
Criteria Air Pollutant	Averaging Time	Primary Standard	Secondary Standard
Carbon Monoxide (CO)	1-hour ^a	35 ppm ^b (40 mg/m ^{3c})	None
	8-hour ^a	9 ppm (10 mg/m ³)	None
Lead (Pb)	Quarterly Average	1.5 ug/m ^{3d}	Same as Primary Standard
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm (100 ug/m ³)	Same as Primary Standard
Ozone (O ₃)	1-hour average ^h	0.12 ppm (235 ug/m ³)	Same as Primary Standard
	8-hour average ^e	0.08 ppm (157 ug/m ³)	Same as Primary Standard
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	50 ug/m ³	Same as Primary Standard
	24-hour average ^a	150 ug/m ³	Same as Primary Standard
Particulate Matter (PM _{2.5})	Annual Arithmetic Mean ^f	15 ug/m ³	Same as Primary Standard
	24-hour average ^g	65 ug/m ³	Same as Primary Standard
Sulfur Dioxide (SO ₂)	24-hour ^a	0.14 ppm (365 ug/m ³)	None
	Annual Arithmetic Mean	0.03 ppm (80 ug/m ³)	None
	3-hour Maximum ^a	None	0.5 ppm (1300 ug/m ³)
<p><i>Source: Kansas Department of Health and Environment, 2005</i></p> <p>a Not to be exceeded more than once a year</p> <p>b mg/m³ = milligrams per cubic meter</p> <p>c ppm = parts per million</p> <p>d ug/m³ = micrograms per cubic meter</p> <p>e Established for a 3-year average of the fourth highest daily maximum concentration</p> <p>f Established for a 3-year average</p> <p>g Established for a 3-year average of the 98th percentile of data</p> <p>h (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < = 1.</p> <p>(b) The 1-hour NAAQS would no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004 (40 CFR 50.9; 69 FR 23996).</p>			

Fort Leavenworth is currently in an attainment area for ambient air quality, which means that it is in compliance with current ambient air quality standards.

4.2.1.2 Air Pollutant Emissions at Installation

Fort Leavenworth currently has one Class II Air Emission Source Operating permit issued by the State of Kansas. This permit was issued on February 15, 2002, and it is an open ended permit that does not expire. Fort Leavenworth has not had any air quality violations and is in attainment for this permit.

4.2.1.3 Regional Air Pollutant Emissions Summary

Emissions inventories are a summary of air pollutant emissions covering a specific geographic area for an established period of time (KDHE, 2005). The KDHE Bureau of Air and Radiation uses emissions inventories to provide inputs to air quality modeling; site ambient air monitors; determine trends in air pollutant emissions levels; design air pollution control policies and evaluate their effectiveness following implementation; and determine emissions fees (KDHE, 2005).

Point source emissions data compiled for the State of Kansas found the majority of pollutants came from electric utilities that produced approximately 250,000 tons of pollutants in 2003. Natural gas compressor stations, and chemical and allied products, were much smaller sources of pollutants with each contributing approximately 50,000 tons of pollutants (KDHE, 2005).

The CAA established Air Quality Control Regions (AQCRs) based on various criteria including jurisdictional boundaries as well as atmospheric areas of urban industrial concentrations of air contaminants. Leavenworth County is located within the Metropolitan Kansas City Interstate AQCR (1.25 AQCR (40 CFR)), which is in attainment.

4.2.2 Consequences

4.2.2.1 Alternative 1, No Action Alternative

- **Direct Impacts.** Under the No Action Alternative only those construction and renovation projects previously reviewed by the installation would be accomplished, and existing on-going mission activities would continue at their current level.

Short-term air quality impacts would occur as particulate matter is emitted as a result of the limited number of planned and separately reviewed construction activities are accomplished. Both the dust emissions and exhaust emissions associated with construction are minor, temporary, and confined primarily to the immediate project areas. Best Management Practices (BMPs) would be employed to minimize fugitive dust emissions. For example, dust suppression would be applied at construction sites in order to reduce emissions.

Ongoing installation mission activities would occur at their current level of intensity and frequency; therefore, there would be negligible impacts to air quality from this alternative.

- **Indirect Impacts.** Implementation of the No Action Alternative would have negligible indirect impacts to air quality. Short-term air quality impacts would occur when dust and engine emissions created by construction activity are blown off of the construction sites into nearby areas; however, these impacts would be limited to those construction projects individually reviewed in other existing environmental documents. Additionally, ongoing maintenance and

operation of the facilities and the equipment assigned to the operational units using the facilities would result in approximately the same level of dust and engine emissions as those reflected in the affected environment conditions. There is a potential that these emissions could be blown off of the installation.

4.2.2.2 **Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)**

- **Direct Impacts.** Alternative 2 would have minor adverse direct impacts to air quality. Short-term air quality impacts would occur as particulate matter is emitted as a result of construction activities for the proposed tactical equipment and vehicle maintenance facilities and the COFs. Both the dust emissions and exhaust emissions associated with construction are negligible, temporary, and confined primarily to the immediate project area. BMPs would be employed to minimize fugitive dust emissions. For example, dust suppression would be applied at construction sites in order to reduce emissions.

Negligible direct impacts to air quality as a result of the operation of the proposed COFs and equipment maintenance facilities would result from heating and operating the facilities. Additionally, the use of petroleum, oil, and lubricants (POL) and vehicle exhausts are anticipated to result in negligible additional emissions. These emissions would be in such negligible quantities that there are no anticipated changes of air quality with the implementation of this alternative.

- **Indirect Impacts.** Implementation of Alternative 2 would have negligible indirect impacts to air quality. Short-term air quality impacts would occur when dust and engine emissions created by construction activity are blown off of the construction sites into nearby areas. Additionally, ongoing maintenance and operation of the facilities and the equipment assigned to the operational units using the facilities would result in negligible amounts of dust, engine emissions, and other emissions associated with tactical equipment and vehicle maintenance. There is the potential that these emissions could be blown off of the installation.

4.2.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

- **Direct Impacts.** Implementation of Alternative 3 would have less air quality direct impacts than Alternative 2 due to the use of existing buildings and less proposed construction. Negligible short-term impacts to air quality are anticipated from repair, revitalization and construction activities, as particulate matter is emitted during these activities. Both the dust emissions and exhaust emissions associated with these activities are temporary and are confined primarily to the immediate project areas. BMPs would be employed to minimize fugitive dust emissions. For example, dust suppression would be applied at construction and redevelopment sites in order to reduce emissions.

Negligible direct impacts to air quality as a result of the operation of the proposed COFs and equipment maintenance facilities are anticipated. These impacts are expected to be similar to those anticipated under Alternative 2.

- **Indirect Impacts.** Implementation of Alternative 3 would have less air quality indirect impacts than Alternative 2 due to the use of existing buildings and less proposed construction. Short-term, minor indirect air quality impacts would occur when dust and engine emissions created by construction activity are blown off of the construction sites into nearby areas.

4.3 NOISE

4.3.1 Affected Environment

Noise can be defined as sounds that are “unwanted or unwelcome,” that disrupt normal activities, or that diminish the quality of the environment. These sounds are generally caused by human activity. Usually a single noise event does not trigger an individual or community response; however, a series of noise events over time often could raise concerns. Of particular importance are the acoustic levels of individual noise events, the number of events per day, the times of the day at which the events occur, and the duration of the events (CAC, 1999b).

To protect the general public from noise impacts, the U.S. Army has established a mechanism for developing environmental noise management plans (ENMP) that monitor noise levels. By examining the effects of noise on an installation’s adjacent communities the ENMP establishes a background for relating land use noise levels. The ENMP then assesses noise levels from Army-generated operations in order to identify noise-impacted areas and describe each area’s land use compatibility (DA PA 2001³).

Due to the limited sources of noise at Fort Leavenworth, the installation is not required to have an ENMP. The two primary sources of noise at military installations are aircraft operations, and weapons training and qualification. Fort Leavenworth currently does not have any assigned military aircraft and has only one small arms weapons firing range. Located in a relatively isolated area of the installation, the weapons firing range does not have adverse noise impacts on either on-post or surrounding community land uses (USACE KCD, 2003).

4.3.2 Consequences

4.3.2.1 Alternative 1, No Action Alternative,

- **Direct Impacts.** Under the No Action Alternative, no new construction or renovation would occur at Fort Leavenworth. Therefore, there would be negligible noise impacts from the stationing of deployable MTOE Correctional Command MP at Fort Leavenworth. These negligible noise impacts are not expected to result in additional impacts on other on- or off-post activities.

³ Department of the Army Pamphlet 200-1 Environmental Protection and Enhancement

- **Indirect Impacts.** Operations of these facilities are not anticipated to greatly change existing noise levels; therefore areas located a distance from these operations would not be affected.

4.3.2.2 **Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)**

- **Direct Impacts.** Alternative 2 would have minor adverse direct noise impacts. During construction there would be short-term, localized noise impacts associated with the operation of construction equipment and machinery, power tools, and the delivery of construction materials. These noise impacts would be temporary, and confined primarily to the immediate project areas. BMPs would be employed to minimize the potential noise impacts. For example, construction activities near sensitive noise areas, such as housing, would be limited to daylight and/or normal business hours to have less effect on sensitive areas.

The operation of the COFs and equipment maintenance facilities would also result in negligible adverse direct impacts. Current noise levels at the former USDB vocational farm site are extremely low as only a small portion of this site is currently used in support of the installation's Military Working Dog program. Surrounding land uses include residential and farm related activities.

- **Indirect Impacts.** Although the anticipated noise levels of these operations are expected to be low, relative to the existing levels there would be a noise increase, and on the rare event that the facilities would be used during non-traditional working hours, a perception of greater noise impacts on the surrounding off-post land use may occur.

4.3.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

- **Direct Impacts.** Alternative 3 would have minor adverse direct noise impacts similar to those discussed under Alternative 2. However, these impacts would be less than those of Alternative 2 due to the use of existing structures and limited construction projects.

The operation of the COFs and equipment maintenance facilities would result in negligible adverse direct impacts. The current noise levels at Buildings 109, 262, 263 and 264 are low to moderate. These buildings are located within the cantonment near areas with activity; therefore the existing noise levels are higher than those of the former USDB vocational farm site. Anticipated noise levels of these operations are expected to be negligible and should change only slightly relative to the existing noise levels.

- **Indirect Impacts.** Alternative 3 would have negligible adverse indirect noise impacts. Given the location of the proposed development site, this alternative

is not anticipated to result in adverse noise impacts on surrounding off-post uses.

4.4 GEOLOGY AND SOILS

4.4.1 Affected Environment

4.4.1.1 Geologic and Topographic Conditions

Fort Leavenworth has three distinct geographical areas: upland, bottomland, and transitional. The geography of the areas to be affected by the proposed action is all upland areas.

The topography of the former USDB vocational farm site is moderately hilly. The drainages from this site do not all flow in one direction but due to the topography flow in multiple different directions off of the site.

Buildings 109, 262, 263 and 264 area located in the cantonment is flat or level with some areas having adjacent or surrounding steep slopes. Prior activities in the area have necessitated the construction of an asphalt-concrete parking are over most of the area.

Existing geologic formations were created by a combination of depositional and erosional forces. Sediments were deposited onto a base of igneous and metamorphic rock. Basement igneous and metamorphic layers are part of the 2,000-foot-deep Canadian Shield. Approximately 250 million years ago the advancement and withdrawal of shallow seas deposited layers of sand, mud, and calcareous materials. These layered materials produced sandstone, shale, and limestone called the Lansing and Shawnee groups. More recent formations were the result of depositions from glaciation, wind, and water (CAC, 1999a).

4.4.1.2 Soils

The soils found at the former USDB vocational farm site are of two associations. The Knox-Ladoga association is highly erodible and has slow permeability, while the Gosport-Sogan association has a low level of erodibility and slow permeability (SCS, 1977).

The soils at the former USDB vocational farm site can be further broken down into seven soil map units.

- Over half of this site is composed of the map unit Ladoga silt loam, 3 to 8 percent slopes (USDA, NRCS, 2006). The Ladoga silt loam is composed of deep, moderately sloping, moderately well drained, moderately slowly permeable soils that are located on uplands. These soils have a silt loam surface layer and a firm silty clay loam subsoil. This map unit is highly erodible (USDA, NRCS, 2006).
- The Knox silty clay loam, 7 to 12 percent slopes eroded map unit covers the next largest area at this site. This map unit covers less than 20 percent of the site and is composed of soils that are deeply,

strongly sloping, well drained, moderately permeable soils that are located on uplands. These eroded soils have a lighter colored silty clay loam surface layer than the noneroded phase and a friable silty clay loam subsoil. This map unit is also highly erodible.

- The remaining five map units each make up a much smaller portion of the former USDB vocational farm site. All of the remaining map unit soils are also located on uplands and considered highly erodible soils.
 - The Gosport complex, 10 to 30 percent slopes is composed of moderately deep, moderately steep, moderately well drained, very slowly permeable soils that have a silt loam surface layer and a very firm silty clay subsoil. The complex is made up of 50 percent Gosport soils, 15 percent by soils less than 20 inches deep, and 35 percent by soils over 40 inches deep.
 - The Marshall silt loam, 5 to 9 percent slopes map unit is composed of deep, moderately sloping, well drained, moderately permeable soils that have a silt loam surface layer and a friable silty clay loam subsoil.
 - The Knox silt loam, 7 to 12 percent slopes map unit is composed of deep, strongly sloping, well drained, moderately permeable soils that have a silt loam surface layer and a friable silty clay loam subsoil.
 - The Knox complex, 18 to 30 percent slopes map unit is composed of deep, moderately steep, well drained, moderately permeable soils that have a silt loam surface layer and a friable silty clay loam subsoil.
 - The Gosport-Sogn complex, 7 to 35 percent slopes map unit is composed of moderately deep to very shallow, strongly sloping to steep, moderately well drained and somewhat excessively drained, very slowly permeable and moderately permeable soils. The Gosport soils have a silt loam surface layer and a very firm silty clay subsoil, while the Sogn soils are very shallow, somewhat excessively drained, moderately permeable soils that have a silty clay loam surface layer over limestone bedrock.

The soils present at Buildings 109, 262, 263, and 264 are composed of two soil map units, the Marshall silt loam, 5 to 9 percent slopes and the Knox complex, 18 to 30 percent slopes. Both of these soil map units were previously described as they are also present at the former USDB vocational farm site (USDA, NRCS, 2006).

4.4.1.3 Prime Farmland

Important farmland may be classified as (1) prime, (2) unique, (3) of statewide importance, and (4) of local importance. Prime farmland is defined by the U.S. Department of Agriculture (USDA) as the best land for producing food, feed, forage, fiber, and oilseed crops. Congress enacted the Farmland Protection Policy Act (FPPA) as a subtitle of the 1981 Farm Bill. The purpose of the law is to "minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses" (P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.).

Under FPPA, Federal agencies sponsoring a project subject to the law must complete a Land Evaluation that is reviewed by the NRCS. A copy of the installation's initial assessment and coordination is located in Appendix A of this EA. Upon completion of evaluation, the NRCS determined that this project would not have adverse impacts on Prime Farmlands. A copy of the NRCS letter is also located in Appendix A.

4.4.2 Consequences

4.4.2.1 Alternative 1, No Action Alternative,

Under the No Action Alternative no new construction or renovation would occur at Fort Leavenworth, and vehicle activities would be conducted primarily on previously paved areas. Therefore, there would be negligible impacts to geology and soils from the stationing of deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.4.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Alternative 2 would have minor adverse direct impacts to soils. Soils would be disturbed by construction activities such as grading, vegetative clearing, and excavating during construction of the COFs and equipment maintenance facilities on the former USDB vocational farm site. Soil disturbance has a high potential to result in erosion and increases in total sediment loads in storm water runoff.

Mulching, silt fences, sediment traps, straw berms, temporary cover crops, and other erosion control BMPs would reduce soil erosion at the site. Erosion controls detailed in NRCS Critical Area standards and those required by the State of Kansas storm water discharge permits for construction sites as well as other BMPs would be used, where applicable, to reduce erosion and protect the water quality of receiving streams. Although BMPs are not 100 percent effective in preventing sediment run off, the proponent would ensure that the construction contractor complies with established permits and RMP requirements. Even with implementation of controls, short-term soil erosion is anticipated.

The Ladoga, Knox, Marshall and Sharpsburg soil series found in the cantonment area and upland forests are highly erodible, on slopes greater

than 4 percent. Extra care to ensure that effective BMPs are maintained in these areas is required to reduce the potential for soil erosion. Areas disturbed during construction would be cleared, replanted, and maintained as described in Section 4.13, the Mitigation Summary, included in this EA.

- **Indirect Impacts.** Alternative 2 would have minor adverse indirect impacts to soil erosion due to an increase in impermeable surfaces following construction which would create faster rates of runoff. However, the use of permanent erosion controls detailed in NRCS Critical Area standards and those required by State of Kansas storm water discharge permits for construction sites as well as other BMPs would decrease the indirect impacts to soils located in the vicinity of the area of proposed development.

4.4.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

- **Direct Impacts.** Implementation of Alternative 3 would have minor adverse impacts to soil resources due to the use of existing structures, including an asphalt-cement parking area over much of the site. The renovation of existing buildings and limited construction projects of this alternative would result in much less soil disturbance. However, some of these areas have adjacent or surrounding steep slopes that are prone to erosion. Erosion control measures similar to the BMPs that were described in Alternative 2 would be used for the construction activities that would occur under this alternative.

The Ladoga, Knox, Marshall and Sharpsburg soil series found in the cantonment area and upland forests are highly erodible, on slopes greater than 4 percent. Extra care to ensure that effective BMPs are maintained in these areas is required to reduce the potential for soil erosion. Areas disturbed during construction would be cleared, replanted, and maintained as described in Section 4.13, the Mitigation Summary, included in this EA.

- **Indirect Impacts.** Due to the use of existing structures and the construction of fewer new facilities, there would be less indirect impacts under this alternative. However, this alternative would still have minor adverse indirect impacts to soil erosion due to an increase in impermeable surfaces following construction which would create faster rates of runoff. However, the use of permanent erosion controls detailed in NRCS Critical Area standards and those required by State of Kansas storm water discharge permits for construction sites as well as other BMPs would decrease the indirect impacts to soils located in the vicinity of the area of proposed development.

4.5 WATER RESOURCES

4.5.1 Affected Environment

4.5.1.1 Surface Water

Area surface water bodies consist of numerous intermittent streams and three small lakes. Merritt, Smith, and Fuller lakes total approximately 10 surface acres. Corral Creek crosses the southern portion of the post and drains into the Missouri River southeast of Osage Village. Quarry Creek originates in a small ravine west of the National Cemetery and drains to the northeast toward the Sherman Army Airfield. Several unnamed intermittent streams provide open storm drainage that drains into stock ponds or the aforementioned creeks (CAC, 1992). Stormwater runoff is inhibited by the vegetative cover. No major flooding has resulted from backup along the various creeks and streams.

Four small ponds occur inside the boundary of the former USDB vocational farm site (Alternative 2). Two other small ponds lie just outside the boundary of the farm. A portion of one unnamed intermittent creek flows through the south portion of the site.

No ponds occur near Buildings 109, 262, 263 and 264 (Alternative 3). Quarry Creek is within 500 feet down slope of the site.

4.5.1.2 Hydrogeology/Groundwater

Groundwater on the installation is found in considerable quantities in the alluvial deposits along the Missouri River. Depth of saturated water-bearing materials averages 40 feet. Availability of groundwater in the tributary streams' watersheds is very limited in thickness and yields are also restricted by the prominence of clay fill sediments. Fort Leavenworth has several wells about 75 feet deep within the levee area co-located with the Sherman Army Airfield. The wells are in the Missouri River floodplain and use river water from below grade to supply the installation with water.

4.5.1.3 Floodplains

Fort Leavenworth is located in a glaciated region characterized by hills and rock outcroppings above a wide floodplain. The 100-year floodplain of the post includes the Missouri River and the entire bottomland area. The relatively flat terrain of the bottomland and proximity of the Missouri River subjects this area to periodic flooding. A 4-mile-long levee currently protects the Sherman Army Airfield, maintenance shops, small arms range, and the installation water wells. In July 1993, major flooding occurred along the Missouri River, which inundated the bottomland containing the airfield and a few other buildings.

None of the proposed Alternative locations are located within the 100-year floodplain.

4.5.2 Consequences

4.5.2.1 Alternative 1, No Action Alternative

Under the No Action Alternative, no new construction or renovation would occur at Fort Leavenworth, and vehicle activities would be conducted primarily on previously paved areas. Therefore, there would be negligible impacts to water resources from the stationing of deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.5.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** In Alternative 2, minor adverse direct impacts to surface water would occur as a result of cut and fill activities, grading, and construction activities as this site is not developed. Construction activities can affect water resources by contributing suspended particulates from eroded soil to surface waters such as streams, wetlands, and ponds within the project site. Direct impacts to water resources, such as the degradation of water quality from nonpoint source pollution (e.g., uncontrolled storm water runoff and soil erosion), would be reduced as a result of BMPs. Even with implementation of controls, minor short-term impacts to surface water quality associated with sediment runoff are anticipated.
- Any construction or site grading activity which disturbs 1 acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for storm water runoff resulting from construction activities. The installation must obtain authorization from KDHE to discharge storm water runoff associated with construction activities prior to commencing construction.
- Current regulations require that any project that would generate wastewater (other than domestic) and that would be directed to a municipal sanitary sewer for treatment and disposal, would need to contact the municipality and receive authorization regarding the introduction of this wastewater.
- **Indirect Impacts.** Implementation of Alternative 2 would have minor indirect impacts to local water resources. The increase in impermeable surfaces following construction would create faster rates of runoff that could lead to increased erosion. Since this Alternative site is adjacent to and upslope from the installation border, any impacts to water quality could impact private land-owners occurring off-post. However, the use of temporary and permanent erosion controls detailed in NRCS Critical Area standards and those required by State of Kansas storm water discharge permits for construction sites as well as other BMPs would decrease the indirect impacts to soils located in the vicinity of the area of proposed development. Examples of BMPs include: the use of silt fences to minimize erosion and siltation in aquatic habitats; the establishment of streamside management zones; the control and collection of stormwater runoff from impervious surfaces (i.e.,

roads, parking lots); the creation of detention ponds and the creation of natural resource management plans and other management efforts to protect water quality and aquatic habitat. Construction and use of stormwater retention ponds and berms on the site would minimize impacts to existing drainage patterns.

4.5.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

- **Direct Impacts.** Implementation of Alternative 3 would have minor adverse impacts to water resources due to the use of existing structures. The renovation of existing buildings and limited construction projects of this alternative would result in much less soil disturbance. However, some of these areas have adjacent or surrounding steep slopes that are prone to erosion. The same erosion control measures and BMPs that were described in Alternative 2 would be used for the construction activities that would occur under this alternative. Construction vehicle discharges or spills washed down slope during construction and during operation of the facility would have a short-term direct adverse affect on stormwater quality within and near the project site. Spill prevention control measures, as defined in the SPCC Plan, would be utilized to minimize spill potential.
- **Indirect Impacts.** Indirect impacts under Alternative 3 would be similar to Alternative 2, except that an intermittent stream, Quarry Creek, is within 500 feet down slope of the site. Any soil erosion, construction debris, vehicle discharges or spills washed down slope during construction and/or operation of the facilities could have a short-term and long-term indirect adverse affect on water quality within the creek. Implementing BMPs, such as erosion control measures and spill prevention measures, would reduce short- and long-term impacts during construction and operation of the site.

4.6 **BIOLOGICAL RESOURCES**

4.6.1 **Affected Environment**

4.6.1.1 **Vegetation**

Vegetation on Fort Leavenworth is diverse and includes upland forest, bottomland forest, bluff ecosystem, grassland, and urban or improved grounds. An oak-hickory forest associated with walnut, elm, hackberry, ash, maple, locust, and cherry characterizes the upland forest. The bottomland forest is cottonwood-sycamore with the associated species of boxelder, willow, pecan, hackberry, ash, and walnut. The bluff ecosystem is similar to the upland forest but with greater wildflower diversity. Grasslands range from native prairie grasses to planted brome and fescue. Some grasslands are interspersed with locust, cherry, cedar, and elm. Urban or improved grounds within the cantonment area are planted with ornamental and shade trees, evergreens, shrubs, and groundcovers. Turf has been established and maintained in and around buildings.

The State of Kansas classifies 13 plants as being noxious in the state. The primary noxious plants on Fort Leavenworth are bull and Canada thistles. These plants are treated on an as needed basis. Field bindweed, which grows along roadsides, is also occasionally sprayed. Most weed spraying is in response to complaints or when the weed has become a problem.

Vegetation in and around the former USDB vocational farm site (Alternative 2) consists of warm and cool season grassland interspersed with small trees such as cedar and locust, and a small amount of upland oak-hickory forest on the south side.

Vegetation within and around Buildings 109, 262, 263 and 264 (Alternative 3) include maintained turf, a few landscape trees. Upland and riparian forested areas are located directly down slope to the west of this potential development area.

4.6.1.2 Wildlife

Fort Leavenworth supports many species of mammals, birds, amphibians, reptiles, and fish which reside, breed, or visit in the less active, less disturbed, areas of the installation.

These species include quail, wild turkey, white-tailed deer, and a variety of non-game species.

Fish species found in the installation fisheries include channel catfish, bluegill, black bass and several rough fish. Trout are stocked in Merritt and Smith Lakes to enhance the fishery when funding is available.

Most of these wildlife species would likely occur near the former USDB vocational farm site (Alternative 2), and ponds on the site could include some of the common fish species.

Wildlife would not commonly occur around Buildings 109, 262, 263 and 264 (Alternative 3) since it is highly developed and mostly paved. Forest wildlife species, such as white-tailed deer, turkey, and non-game wildlife would likely occur directly west of this site within the upland and riparian forested area.

4.6.1.3 Sensitive Species

Federal Species

The United States Fish and Wildlife Service (USFWS) administers the ESA of 1973. The Act provides Federal protection for plants and animals listed as endangered or threatened. The USFWS lists six federally threatened or endangered species and two Federal candidate species listed for Leavenworth County, Kansas. These species are listed on Table 4.2.

Of the six identified threatened or endangered species may occur in the project area although only the bald eagle has been sighted. For additional information, a copy of the USFWS's coordination letter is located in Appendix

A. Species identified by the USFWS as potentially being present in the project area include the following which are further described below:

- bald eagle (*Haliaeetus leucocephalus*),
- western prairie fringed orchid (*Platanthera praeclara*).

The bald eagle typically seeks rivers or reservoirs with open water, little human activity, and large concentrations of waterfowl. Large diameter cottonwoods, sycamores, and other riparian trees are often used as daytime perches and night roosts, and are an important resource in the recovery of the species. The bulk of the eagles' diet is fish, but bald eagles are opportunistic and supplement their diet with a variety of living and dead species. These birds are sensitive to disturbance, and radical changes in the eagle's environment can be detrimental. Weston Bend State Park, north of the installation on the eastern bank of the river, is used as a nesting site for bald eagles. The bald eagle is known as a regular winter resident along the Missouri River. Fort Leavenworth has developed an Endangered Species Management Plan for the bald eagle in accordance with AR 200-3 Natural Resources-Land, Forest and Wildlife Management. This plan is part of the Integrated Natural Resources Management Plan (INRMP).

Common Name	Species Name	Federal Status	Habitat Notes	Remarks
American Burying Beetle	<i>Necrophorus americanus</i>	Endangered	Occurs in suitable grasslands and upland woodlands	Endangered nationally
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Known as a regular winter resident along the Missouri River. Prefers mature riparian woodland along the river.	Critical habitat has been designated. Threatened nationally.
Eskimo Curlew	<i>Numenius borealis</i>	Endangered	Formerly a regular spring transient using bare fields and heavily grazed or burned grasslands. Not recorded in Kansas since 1902. A few birds may still migrate through the state.	Endangered nationally.
Least Tern	<i>Sterna antillarum</i>	Endangered	Known to occur historically and may still occur as seasonal transient or summer visitor at waters where forage fish are abundant.	Endangered nationally.
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered	Known to occur in the Missouri River main stem and to occur historically in the Kansas River during flood flows. Prefers swift turbid rivers with firm sand substrate.	Critical habitat has been designated. Endangered nationally.
Piping Plover	<i>Charadrius melodus</i>	Threatened	May occur as a rare seasonal transient on sparsely vegetated shores of streams, marshes or impoundments.	Threatened nationally.

Common Name	Species Name	Federal Status	Habitat Notes	Remarks
Sicklefin Chub	<i>Macrhybopsis meeki</i>	Candidate	Known to occur in the Missouri River main stem. Prefers areas of strong current over sand or gravel substrate.	Critical habitat has been designated.
Sturgeon Chub	<i>Macrhybopsis gelida</i>	Candidate	Restricted to larger sandy rivers swept by currents especially at heads of islands and sand bars. Has been documented in the Missouri River.	Critical habitat has been designated.
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Threatened	The western prairie fringed orchid grows in tallgrass prairie and requires direct sunlight. It is most often found in moist habitats or sedge meadows.	Threatened nationally.

Source: KDWP 2006, http://www.kdwp.state.ks.us/news/other_services/threatened_and_endangered_species

The western prairie fringed orchid is federally threatened. The western prairie fringed orchid is known to occur in some low-lying native prairies in Leavenworth County; however, it has not been identified as being present on Fort Leavenworth.

State Species

The Kansas Department of Wildlife and Parks (KDWP) also maintains a list of species that are threatened or endangered within the State of Kansas. The Kansas Nongame and Endangered Species Conservation Act (K.S.A. 32-501 through 32-510) places responsibility for identifying and undertaking conservation measures for threatened and endangered wildlife species with KDWP. The Act provides protection for rare and declining animal species but not for native Kansas plants. The 18 species that have a designated state status and occur within Leavenworth County are listed in Appendix B. None of these species occur within potential project development areas for this EA and would not be affected by various aspects of this proposed action.

Species in Need of Conservation (SINC) are any nongame species deemed to require conservation measures in attempt to keep the species from becoming a threatened or endangered species in the State of Kansas. SINC species do not have the level of statutory protection as those species listed as threatened or endangered in Kansas. There are 13 SINC in Leavenworth County. These are listed in Appendix B.

4.6.1.4 Wetlands

Wetlands are complex habitats that have characteristics of both upland and open water areas. Sometimes they are transitional from dry land to open water, but not always. Wetlands have soil, water, and plant components. They are typically defined as those areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Typical wetland types

include swamps, marshes, bogs, and similar areas. The determination of wetlands is based on the presence of hydric soils, vegetation supported by hydric soils, and existing hydrology. Hydric soils are found in Leavenworth County, Kansas, and the areas of hydric soils are potential wetlands. The USFWS has completed National Wetlands Inventory (NWI) mapping for all of Fort Leavenworth. There are approximately 1,898 acres of NWI wetlands on Fort Leavenworth that includes farmland, fallow fields, young bottomland forest and mature bottomland forest ecosystems. NWI wetlands are not U.S. Army Corps of Engineers (USACE) jurisdictional wetlands. Further distinction of NWI wetlands potentially impacted by this project would be required for all alternatives.

Fort Leavenworth lies partly in a 2.5-mile wide portion of the Missouri River floodplain. There are approximately 5 miles of riparian habitat and 1,898 acres of floodplain wetlands. The southwest 1/3 of the floodplain is surrounded by artificial levees and dominated by open, grassy fields and cropland around Sherman Army Airfield. Outside the levees is a mix of floodplain forest, shrub-scrub, and herbaceous emergent marshes.

No potential jurisdictional wetlands occur within the two Alternative project areas. Four man-made ponds occur on the former USDB vocational farm site (Alternative 2). These include two sewage lagoon ponds and two other retention ponds that hold water seasonally. No water bodies or wetlands occur within or adjacent to Buildings 109, 262, 263 and 264 (Alternative 3).

4.6.2 Consequences

4.6.2.1 Alternative 1, No Action Alternative

Under the No Action Alternative no new construction or renovation would occur on Fort Leavenworth, and ongoing missions associated with the proposed action would be similar to those currently being conducted at the installation. Therefore, no changes in the existing baseline conditions are expected associated with the stationing of deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.6.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Under Alternative 2 there would be minor direct adverse impacts to biological resources. Existing vegetation would potentially be removed from an area of up to 58 acres to construct ten individual COFs and two vehicle maintenance shops. Vegetation removed would include warm and cool season grassland and a small amount of upland forest. The removal of grassland at the site is expected to cause minor adverse impacts to vegetation. In the unlikely and unexpected event that any trees with marketable value should have to be removed, they would be harvested and sold as part of the Timber Management Plan. The contractor would be required to contact DIS Environmental Division Office Natural Resource

Program Manager to coordinate, review, mark, schedule and harvest the trees. After construction is complete, cleared areas would be landscaped and replanted with grasses, as well as native and non-native (ornamental) plant species.

There would be minor short- and long-term direct adverse impacts to wildlife under Alternative 2 due to displacement and habitat removal. Game species affected may include quail, wild turkey, and white-tailed deer. A variety of non-game species would be affected including grassland birds such as grasshopper sparrow and Henslow's sparrow, which have been recorded at this site. However, since most of the species inhabiting this area are transient, they would move to other similar habitat within the area. As a design feature intended to reduce impacts to migratory birds, no vegetation or tree clearing would occur between April and August when birds could be nesting at the installation. There would be minor short-term direct impacts from noise disturbance to wildlife due to construction and demolition activities.

To date, federally listed threatened and endangered species are not known to be present in the vicinity of the potential site for Alternative 2.

It is possible but unlikely that bald eagles would use habitat in this area. To reduce the potential for impacts to bald eagles, a design feature would be included that would preclude clearing of vegetation and trees between December and February when eagles might be present. Should the clearing of trees be desired between March and November, trained personnel would check the trees for the presence of bald eagles. Should bald eagles or nests be located, trees would not be removed until the following November. Because bald eagles are not expected to be within the construction areas, impacts to this species are not anticipated.

Implementation of this alternative would not involve development within low-lying native prairie areas, the type of habitat where the western prairie fringed orchid is known to occur. Impacts to this species are not anticipated, and although Leavenworth County is within the native range of the species, the species has not been previously identified on Fort Leavenworth.

There would be no direct effects on wetlands under Alternative 2, as there are no jurisdictional wetlands occurring within or adjacent to the site (Nowak, 2006). A new storm water retention pond would need to accommodate storm water runoff from the new facilities. The sewage lagoons would be removed once the facilities are connected to the sanitary system on Fort Leavenworth. No creeks and streams are within 500 feet of the site, and so no riparian species would be affected. No water crossing would be necessary under this alternative.

- **Indirect Impacts.** Construction proposed as part of Alternative 2 may cause minor adverse indirect impacts to fish and wildlife species. The removal of vegetation and dirt work would lead to increased water runoff and soil erosion

down slope off of Fort Leavenworth property. This increased runoff may contain sediment, contaminants, and other construction-related debris. Sediment loading in streams may increase turbidity and affect other water quality parameters such as dissolved oxygen, pH, conductivity, and heavy metal concentrations, which in turn could affect fish and wildlife. Construction sites are often exposed to vehicle and equipment contaminants that have the potential to stress or cause mortality in species. Restricting the movement of construction and other equipment in wet weather conditions would reduce adverse impacts to species habitat. All of these impacts would be minimized through the use of proper construction techniques and BMPs that would reduce or eliminate most adverse impacts to aquatic species.

Removing existing vegetation to accommodate the construction would cause minor indirect long-term adverse impacts to vegetation. Areas cleared and disturbed during construction would be replanted.

4.6.2.3 Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

- **Direct Impacts.** Under Alternative 3 there would be negligible direct adverse impacts to biological resources. Any minimal existing vegetation would potentially be removed from an area of up to 7.5 acres due to renovation and construction for individual COFs and vehicle maintenance shops. Vegetation removed would include mostly planted turf and landscape plants. In the unlikely and unexpected event that any trees with marketable value should have to be removed, they would be harvested and sold as part of the Timber Management Plan. The contractor would be required to contact DIS Environmental Division Office Natural Resource Program Manager to coordinate, review, mark, schedule and harvest the trees. The minimal removal of turf at the site is expected to cause negligible adverse impacts to vegetation. After construction is complete, cleared areas would be landscaped and replanted with grasses, as well as native and non-native (ornamental) plant species.

There would be minor short-term direct impacts from noise disturbance to wildlife due to construction and demolition activities.

Federally listed threatened and endangered species are not known to be present in the vicinity of the potential site for Alternative 3.

The potential renovation and construction location under this alternative include fenced areas within the cantonment that experience extensive human activity. Consequently, it is unlikely that bald eagles would use any habitat in these areas. To reduce the potential for impacts to bald eagles, a design feature would be included that would preclude clearing of vegetation and trees between December and February when eagles might be present. Should the clearing of trees be desired between March and November, trained personnel would check the trees for the presence of bald eagles.

Should bald eagles or nests be located, trees would not be removed until the following November. Because bald eagles are not expected to be within the construction areas, impacts to this species are not anticipated.

Implementation of this alternative would not involve development within low-lying native prairie areas, the type of habitat where the western prairie fringed orchid is known to occur. Impacts to this species are not anticipated, and although Leavenworth County is within the native range of the species, the species has not been previously identified on Fort Leavenworth.

There would be no direct effects on wetlands under Alternative 3, as there are no jurisdictional wetlands occurring within or adjacent to the site (Nowak, 2006). Quarry Creek is within 500 feet down slope of the site, there is the potential for riparian species to be directly affected by sediment runoff from renovation and construction activities. No water crossing would be necessary under this alternative.

- **Indirect Impacts.** Construction proposed as part of Alternative 2, may cause minor adverse indirect impacts to fish and wildlife species. The temporary removal of vegetation and the potential increase in impervious cover, such as concrete, would lead to increased water runoff and soil erosion down slope of the site, particularly into Quarry Creek. This increased runoff may contain sediment, contaminants, and other construction-related debris. Sediment loading in streams may increase turbidity and affect other water quality parameters such as dissolved oxygen, pH, conductivity, and heavy metal concentrations, which in turn could affect fish and wildlife. Construction sites are often exposed to vehicle and equipment contaminants that have the potential to stress or cause mortality in species. Restricting the movement of construction and other equipment in wet weather conditions would reduce adverse impacts to species habitat. All of these impacts would be minimized through the use of proper construction techniques and BMPs that would reduce or eliminate most adverse impacts to aquatic species.

Removing existing vegetation to accommodate the construction would cause negligible indirect long-term adverse impacts to vegetation. Areas cleared and disturbed during construction would be replanted.

4.7 CULTURAL RESOURCES

Cultural resources can be defined as objects, structures, buildings, or sites that may have important archeological and historic values. In addition, cultural resources include properties that may play a crucial role in a community's historically rooted customs, practices, and beliefs. Therefore, cultural resources encompass a wide range of sites and buildings from prehistoric Native American campsites to Army buildings constructed in the recent past (CAC, 1999b).

In order to ensure that cultural resources are considered during federal project planning, Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended (NHPA) (P.L. 89-655) provide a framework for federal review and protection of cultural

resources. The Advisory Council on Historic Preservation (ACHP) developed the implementing regulations for the Section 106 (36 CFR Part 800) process. The National Register of Historic Places (NRHP) is maintained by the Secretary of Interior who also sets forth significance criteria (36 CFR Part 60) for inclusion in the register. For the purpose of consideration by a federal undertaking, cultural resources may be considered “historic properties” if they meet NRHP criteria. Historic properties are those that meet one or more of the following criteria:

- those that are formally placed in the NRHP by the Secretary of the Interior;
- those that meet the criteria and are determined eligible for inclusion; and
- historic properties that are yet undiscovered but may meet eligibility criteria.

Section 110(f) of the NHPA states that “... the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to any National Historic Landmark (NHL), and shall afford the ACHP a reasonable opportunity to comment on the undertaking.”

If an undertaking is determined to have an adverse effect on properties included in, or eligible for, the NRHP, the lead federal agency, and the Kansas State Historic Preservation Officer (SHPO) would enter into consultation to identify ways to avoid or reduce the adverse effects. The ACHP and other interested parties also can participate in the consultation process. Consultation typically results in a Memorandum of Agreement (MOA) that stipulates the measures required to mitigate the adverse effects and identifies the responsible parties and implementation schedule.

The Archeological Resource Protection Act (ARPA) (P.L. 96-95) protects archeological resources present on federal lands. Section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA, P.L. 101-601) and its implementing regulations (43 CFR Part 10) protects Native American human remains, burials, and associated burial goods. AR 200-4 Cultural Resources Management describes the appropriate process that should be followed if historic properties are found on Fort Leavenworth (CAC, 1999b). Finally, Kansas Administrative Regulation 118-3-8 protects archaeological resources and requires coordination with the Kansas SHPO.

4.7.1 Affected Environment

Established in 1827, Fort Leavenworth contains historic buildings and structures that possess unique historical and cultural characteristics that have national importance to the understanding and appreciation of United States military history and the cultural history of the West. Fort Leavenworth is the oldest continuously active Army post west of the Mississippi River. Although its highest priority is its military mission, due to its important history Fort Leavenworth makes an extensive effort to manage the cultural resources present on the installation (CAC, 1999a).

4.7.1.1 Prehistoric and Historic Background

Prehistoric Background

There are several prehistoric archaeological sites in close proximity to the proposed location in Alternative 3. One such site was discovered in 1970, when an archeological investigation uncovered an 8,400-square meter site called Quarry Creek, a well preserved occupation of the Kansas City Hopewell variant of the Middle Woodland period (ca A.D. 1 – A.D. 750). Thirty-three acres of this site were excavated in the summer of 1991 by the Kansas Archaeological Field School (KAFS), a joint endeavor of the University of Kansas and Kansas State University. The site contained an abundance of ceramic and lithic artifacts. Well preserved animal and carbonized plant remains were also found. It is estimated through ceramic and lithic seriations in combination with radiocarbon dates that the Hopewell occupation spanned at least 300 years, ca A.D. 210 – A.D. 540 (CAC, 2003).

Historic Background

In the nineteenth century, Fort Leavenworth, being centrally located on the main westward travel routes, was initially charged with protecting trade caravans over the Santa Fe Trail, serving as a base of exploration of the West, and assisting in the federal government's relocation of Native Americans onto reservations. Throughout the nineteenth century, Fort Leavenworth's history epitomized the successive stages by which Euro-Americans conquered and settled the immense territory stretching from the Mississippi River to the Pacific Ocean (CAC, 2003).

There are two important military missions that have assured Fort Leavenworth's unique position in the nation's military history: the U.S. Army's central military prison and the post-graduate officer training program. These missions were rooted in the latter half of the nineteenth century; however, they continued through the twentieth century and into the twenty-first.

Fort Leavenworth was designated a National Historic Landmark in 1960, in recognition of its unique place in U.S. military, architectural, and social history. In 1974, the National Historic Landmark District (NHLD) was established. Historic buildings located within the NHLD boundaries are listed on the NRHP and therefore must be given special consideration under Sections 106 and 110 of the NHPA (16 U.S.C. 470) and NEPA (CAC, 1999a).

4.7.1.2 Status of Cultural Resource Inventories and Section 106 Consultations

A Phase I Cultural Resource Survey is currently under way at the former USDB vocational farm site at Fort Leavenworth. Although the results of this survey were not available prior to the completion of this EA, Fort Leavenworth would follow existing laws and regulations protecting cultural resources. The results of this survey would be provided to the SHPO and the decision-maker of the proposed action for their evaluation.

Alternative 3 is located near Buildings 109, 262, 263 and 264, which are historic buildings located within the NHLD and are therefore listed on the NRHP and must be given special consideration under Sections 106 and 110 of the NHPA.

4.7.1.3 Native American Resources

There are no known Traditional Cultural Properties (TCPs) located at Fort Leavenworth (CAC, 2003).

4.7.2 Consequences

4.7.2.1 Alternative 1, No Action Alternative,

Under the No Action Alternative no new construction or renovation would occur at Fort Leavenworth, and existing ongoing cultural resource management activities would continue. Therefore, there would be negligible impacts to cultural resources from the stationing of deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.7.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** There are currently no known cultural resources located at this site, and it is located outside of the Fort Leavenworth NHLD. If however, during development of the State of Kansas Phase I and Phase II cultural resources surveys (currently in progress) any potential cultural resources are identified, the installation would consult with the State of Kansas, SHPO to determine appropriate mitigation strategies, including the appropriate level of protection to be provided to the locations.

If archaeological resources are identified during construction; then, construction activities would be stopped until the SHPO has an opportunity to review the findings. In addition, the installation and the SHPO would ensure that the appropriate Native American groups are contacted concerning the found resources.

- **Indirect Impacts.** Indirect impacts to cultural resources are not anticipated with implementation of Alternative 2.

4.7.2.3 Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

- **Direct Impacts.** Alternative 3 would result in minor modification to four historic buildings at the installation (Buildings 109, 262, 263 and 264). Specifically, doorways need to be widened to accommodate the maneuverability limitations of the new types of vehicles. Also, additional equipment maintenance bays would be constructed since this alternative does not provide all the space and facilities to adequately house and support the new operations. Industry and regulatory guidelines exist for the renovation and alteration of buildings on the NRHP. Section 4.13 provides

details of how Fort Leavenworth would manage work on these buildings. These buildings are located within the NHLD and are therefore listed on the NRHP and must be given special consideration under Sections 106 and 110 of the NHPA. Consultation with the SHPO would be conducted so that renovations would be consistent with the architecture of these buildings and minimal impacts would occur to these cultural resources. It is anticipated that renovation and reuse of these facilities would be consistent with the long-term goal to ensure effective, adaptive reuse of historic facilities; thereby ensuring their long-term maintenance. Should this implementation alternative be selected, Fort Leavenworth would ensure that the SHPO concurs with the planned renovation activities at each of the buildings. As currently envisioned, the four existing buildings would be renovated and used to support the additional COF requirements.

This alternative would also include the development of new Tactical Equipment Maintenance Facilities. The Army standard designs for these facilities would be modified to ensure that the exterior of the buildings would not result in adverse impacts to the views from these buildings or other proximate historic structures.

Site work in support of the renovation and new construction effort would result in some earthwork. Due to the close proximity to Quarry Creek, it is anticipated that this earth work could encounter archeological/cultural resources. If the work should identify any cultural resources; then, construction activities would be stopped until the SHPO has an opportunity to review the findings. In addition, the installation and the SHPO would ensure that the appropriate Native American groups are contacted concerning the found resources (as appropriate).

- **Indirect Impacts.** Indirect impacts to cultural resources are not anticipated with implementation of Alternative 3.

4.8 SOCIOECONOMICS

Fort Leavenworth's Region of Influence (ROI) considered for this socioeconomic analysis is comprised of Leavenworth County, Kansas.

4.8.1 Affected Environment

The following sections discuss the existing economic and social conditions of the Fort Leavenworth ROI in respect to labor force, employment, population, housing, and quality of life. Existing social and economic characteristics of Fort Leavenworth are also discussed.

4.8.1.1 Economic Development

Regional Economic Activity

The annual civilian labor force within Leavenworth County was approximately 32,800 workers in 2004 (BLS, 2004). The average annual unemployment

rate in Leavenworth County in 2004 was 6.4 percent, slightly higher than the statewide average of 5.6 percent for Kansas.

Leavenworth County has experienced a continuation of sustained employment and population growth since 2000. The Fort Leavenworth-Leavenworth County area relies on several major factors for its growth. These include (1) the historic economic base of the area provided by Fort Leavenworth and other Federal and State agencies; (2) migration of population and businesses from the core and highly urbanized areas of the Kansas City metropolitan area; and (3) quality of life and the expanding private business sector. Although the public sector has remained the foundation of the local economy, the private business sector continues to experience unprecedented growth. A portion of the growth is attributable to the military and civilian personnel, and defense contractors associated with Fort Leavenworth. Table 4.3 portrays the largest employers in Leavenworth County.

Table 4.3 Largest Employers, Leavenworth County	
Employer	Number of Employees
Fort Leavenworth	5,601
Leavenworth School District #453	829
Veteran Affairs Medical Center	750
Lansing Correctional Institution	700
Hallmark Cards, Inc.	647
Northrop-Grumman	589
U.S. Federal Penitentiary	550
<i>Source: Kansas City Area Development Council, County Profiles, 2005</i>	

Fort Leavenworth Contribution to Regional Economic Activity

In FY04/05 the combined military and civilian payrolls exceeded \$274 million, with an additional \$236 million expended for services, supplies, utilities, and travel/transportation. In addition, during FY05 approximately \$44 million was approved for construction projects on the installation. Applying a multiplier factor to the initially generated direct income and purchase of goods and services by Fort Leavenworth, the total economic impacts, including direct, indirect, and induced impacts, range between \$750 million to \$1 billion (Fort Leavenworth, 2005).

4.8.1.2 Demographics

Regional Population

The population of Leavenworth County increased from 64,371 in 1990 to 68,691 in 2000. This represented approximately a 7 percent increase compared to an MSA increase of over 13 percent and a statewide increase

exceeding 8 percent during the same time period. Conversely, the City of Leavenworth experienced approximately an 8 percent decrease in population during this period. The institutionalized population comprises almost 10 percent of Leavenworth County's population, with over 80 percent of this population group consisting of correctional institution incarcerations.

The current population estimate of 73,113 for Leavenworth County represents a 1 percent annual increase since 2000. This relative annual growth rate is less than that for the Kansas City MSA, but greater than the statewide rate. Population projections for 2015 indicate a sustained annual growth rate for Leavenworth County.

The dynamics of population change responsible for population growth or decline are natural increase (births minus deaths) and net migration. Net migration is the difference between people moving in (in-migration) and people moving out (out-migration) of the area. Table 4.4 portrays the relative importance of these two components of population growth for the Fort Leavenworth area during the 2000-2005 timeframe.

In-migration was a minor factor in population growth in Leavenworth County during the 1990s, comprising only 14 percent of the population increase during the 1990-2000 timeframe. However, since 2000 the rate of in-migration has increased accounting for 54 percent of the population growth during the 2000-2005 timeframe. This relative importance of net migration was greater than for the Kansas City MSA during the same period, while the State of Kansas experienced a net out-migration of people during this period.

Jurisdiction	Population Increase¹	Natural Increase	NetMigration²	Percent Increase Due to Migration
Leavenworth County	4,422	2,138	2,386	54
Kansas City MSA	111,656	69,971	40,514	36
Kansas	55,863	76,138	(19,542)	0

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Division
¹ Total population increase includes residual population
² Includes both domestic and international migration
 Parentheses denote decrease

Fort Leavenworth Population

Table 4.5 portrays the current status of the on-post military and civilian population associated with Fort Leavenworth. The Fort Leavenworth day-time on-post population is approximately 10,062, and is comprised of over 6,222 military personnel, 3,380 civilians, and over 3,100 military family members. In addition, there are almost 500 inmates in the USDB.

Approximately 65 percent of the permanent party military personnel reside on-post.

The military population consists of 1,769 permanent party personnel, and 1,300 students on a full-time basis. The student population consists of the Command & General Staff Officer's Course; School for Advanced Military Studies; and the School for Command Preparation. The on-post civilian population consists of approximately 1,800 Department of the Army and DoD employees; 544 other civilian employees; and over 1,000 contract employees.

Off-post population directly associated with Fort Leavenworth includes over 1,500 family members of military personnel, the majority of who reside in the cities of Leavenworth and Lansing in Leavenworth County. In addition, there are over 18,000 military retirees within the Fort Leavenworth service area.

Table 4.5 Fort Leavenworth On-Post Population, FY2004/05	
Personnel	Number
Military	
Permanent Party Military	1,769
Students	1,300
On-Post Military Family Members	3,153
<i>Total Military Personnel</i>	<i>6,222</i>
United States Disciplinary Barracks Inmates	460
Civilian	
DA & DOD Civilian Employees	1,802
AAFES, NAF, DeCA Employees	544
Contract Employees	1,034
<i>Total Civilian Personnel</i>	<i>3,380</i>
TOTAL	10,062
<i>Source: Fort Leavenworth, Public Affairs Office, Fort Leavenworth Statistics, 2005</i>	

4.8.1.3 Housing

Regional Housing and Household Characteristics

In 1999 there were a total of 24,401 housing units in Leavenworth County according to the 2000 U.S. Census. The number of housing units increased by 15 percent during the 1990-2000 period. Over 50 percent of the total housing units are in the City of Leavenworth.

According to the 2000 U.S. Census, single-family residential is the dominant housing type, comprising almost 75 percent of the total housing units within the area. Residential building permits issued in Leavenworth County since 2000 reflect a continuation of the popularity of this housing type.

The median value of \$101,600 for owner-occupied housing in Leavenworth County was slightly less than that for the Kansas City MSA, but considerably higher than the statewide median value. Approximately 5 percent of the housing units within Leavenworth County were vacant in 2000.

Leavenworth County's median household income in 2000 was \$48,114, higher than the median incomes for the Kansas City MSA and the State of Kansas. In 2000 there were a total of 23,071 households in Leavenworth County, which represented an increase of 17 percent from 1990. The median age of the population was 35.6 years in Leavenworth County compared to 35.2 years for the Kansas City MSA.

The April 24, 2006, Kansas City Metro Multiple Listing Service contained 414 single-family homes for sale in Leavenworth County. The median listed price was approximately \$160,000. Table 4.6 provides the distribution of these current for-sale properties by listed price range.

Listed Price Range	Number of Homes Listed
\$10,000 - \$50,000	27
\$50,000 - \$75,000	29
\$75,000 - \$100,000	38
\$100,000 - \$125,000	21
\$125,000 - \$150,000	38
\$150,000 - \$175,000	61
\$175,000 - \$200,000	64
\$200,000 - \$225,000	35
\$225,000	101
TOTAL	414

Source: Kansas City Metro Multiple Listing Service, April 24, 2006

Fort Leavenworth Housing

There are 1,578 family housing units for permanent party military personnel, and 649 unaccompanied personnel housing spaces consisting of Single Soldier Quarters, Senior Noncommissioned Officer Quarters, Visitor Officer Quarters, and Bachelor Officer Quarters.

Under its Residential Communities Initiative to improve family housing on military bases across the country, the U.S. Army along with a private developer completed a community development and management plan for privatization of the existing family housing units on Fort Leavenworth. Groundbreaking for this project occurred in the spring of 2006. The proposed 10-year development phase includes construction of 724 new homes; renovation of 522 units, including 253 historic homes; and demolition of 703

units. During the first 24 months of privatization it is planned to have 170 new family homes constructed with renovation beginning on 256 homes.

In addition to the above on-post residency, approximately 845 military personnel and 1,500 family members occupy off-post housing. It is estimated that approximately 1/2 of the off-post military personnel own their homes. Over 65 percent of the off-post military personnel reside in Leavenworth County, primarily in the cities of Leavenworth and Lansing.

4.8.1.4 Quality of Life

Education

On-Post

The Fort Leavenworth School District #207 is a public school district and is a part of the educational system of the State of Kansas. Fort Leavenworth is not a DoD Dependent School. The District has three elementary schools and one junior high school located on-post with a total enrollment capacity of approximately 2,300 students. These schools consist of the Eisenhower Elementary School, MacArthur Elementary School, Bradley Elementary School, and the General George Patton Junior High School. Total enrollment during the 2005-2006 school year was 1,564 students. These schools support children of military personnel living on Fort Leavenworth. High school students of on-post military personnel attend off-post schools.

During the past 7 years the Fort Leavenworth School District #207 has spent approximately \$47 million on on-post school improvements. These improvements have included construction of the Eisenhower Elementary School, renovations of the MacArthur and Bradley Elementary Schools, and the addition of two new gymnasiums and a strength room to the General George Patton Junior High School. Current on-going school facility improvements include the addition of a science/art/music planetarium to Bradley Elementary School. The planetarium would cost approximately \$4 million to construct.

An on-post Child Development Center (CDC) operates a full day program for children six weeks through five years of age. The CDC also provides care for children before and after full-day kindergarten, and all day on school vacation days, including the summer. The CDC is open to eligible military and DoD sponsors as well as DoD contractors.

The on-post Fort Leavenworth Education Center provides a full range of adult continuing education programs that include college-prep, associate's, bachelor's, and master's degree programs. These on-post education programs are provided by Central Michigan University; Kansas City, Kansas, Community College; Kansas State University; Upper Iowa University; and Webster University.

Off-Post

Children of military personnel living off-post are supported primarily by the Leavenworth United School District #453. This school district is comprised of six elementary schools, two middle schools, and one senior high school. Total enrollment during the 2005-2006 school-year was 4,102 students, which included approximately 400 military-dependent students. Enrollment capacity of the District is approximately 6,000 students. The District receives Federal Impact Aid to help off-set the cost of educating the dependent children of military personnel assigned to and living on Fort Leavenworth. The District directly received approximately \$67,000 in impact aid funds for the 2005-2006 school year. A bond issue in the late 1990s financed the construction of a new middle school and the renovation of an elementary school. In addition to the public school system, there are several Christian-affiliated schools located within the vicinity of Fort Leavenworth.

The Kansas City, Kansas, Community College, located in Leavenworth, is the nearest college to Fort Leavenworth. Other colleges within the Fort Leavenworth area include Benedictine College in Atchison, Park College in Parkville, St. Mary College in Leavenworth, and Washburn University in Topeka. There are also several major colleges and universities in Kansas City, Missouri.

Health

On-Post

On-post medical services are provided by the Munson Army Health Center, which provides health care to active duty service members, retirees, and family members in the greater Leavenworth and Kansas City area. As a TRICARE prime healthcare site with over 140,000 annual patient visits, the Munson Health Center offers a variety of primary care and specialty services. Although not offering long-term inpatient services, it does offer an ambulatory surgery center. The Gentry Primary Care Clinic is located adjacent to the Munson Army Health Center and provides family practice, pediatrics, obstetrics/gynecology, and allergy/immunization services.

Off-Post

Off-post medical facilities provide a comprehensive range of primary and secondary health care within the area. There are several hospitals and medical clinics within Leavenworth County and the surrounding area which provide primary care, surgery, and ambulatory care. Hospitals within Leavenworth County include Cushing Memorial Hospital, Dwight D. Eisenhower VA Medical Center, and Saint John Hospital. In addition, there are over 10 hospitals and medical centers in the Kansas City area.

Law Enforcement

On-Post

General law enforcement on Fort Leavenworth is the responsibility of the Provost Marshal – 500th MP Detachment. Under the Uniform Code of Military Justice, military authorities have off-post jurisdiction over offenses committed by military personnel. The military law enforcement authorities coordinate their off-post activities with local law enforcement authorities on a case by case basis.

Off-Post

The City of Leavenworth and Leavenworth County each provide law enforcement for their respective jurisdictions in the areas surrounding Fort Leavenworth. Off-post police have no jurisdiction on the post and the MP units have no jurisdiction off-post, with the exception of offenses committed by military personnel.

Fire Protection

On-Post

Fire protection and emergency services are provided on Fort Leavenworth by the Directorate of Installation Support. The fire department provides all fire protection services on post with two fire stations currently in use: Station #1 at 750 McClellan Avenue; and Station #2 at 295 Biddle Avenue.

Off-Post

Off-post fire protection services in the immediate vicinity of Fort Leavenworth are provided by the City of Leavenworth and Leavenworth County. The City of Leavenworth Fire Department has three stations and six fire engines in addition to rescue and hazardous materials equipment. The Leavenworth County Fire District #1 provides fire protection and emergency services in unincorporated Leavenworth County, and also supplements local municipal fire protection services. The district has one fire station located in the City of Leavenworth.

Recreation

On-Post

There is a wide array of recreational facilities and services provided for military personnel on Fort Leavenworth. These include: the Harney Sports Complex; an arts and crafts center; a bowling center; the Trails West Golf Course; the Gruber Fitness Center; a rod and gun club; skeet and trap shoot range; horse stables and riding arena; and outdoor athletic fields and multi-use courts.

Off-Post

The City of Leavenworth has a wide assortment and park and recreational facilities available for use by Fort Leavenworth military personnel. These facilities are comprised of 21 parks, a community center, and a performing arts center. Park facilities include tennis courts, ball fields, soccer fields, multi-purpose courts, picnic shelters, walking trails, and passive use areas. The Riverfront Community Center includes a swimming pool, indoor track, gymnasium, wellness center, and racquetball courts. The City of Leavenworth Parks and Recreation Department has a wide variety of summer programs and activities available for all age groups.

4.8.1.5 Environmental Justice - Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

On February 11, 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of this EO is to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and low-income populations or communities. An element emanating from this order was the creation of an Interagency Federal Working Group on Environmental Justice comprised of the heads of 17 Federal departments and agencies, including the US Army. Each department or agency is to develop a strategy and implementation plan for addressing environmental justice.

It is the Army's policy to fully comply with EO 12898 by incorporating environmental justice concerns in decision-making processes supporting Army policies, programs, projects, and activities. In this regard, the Army ensures that it would identify, disclose, and respond to potential adverse social and environmental impacts on minority and/or low-income populations within the area affected by a proposed Army action.

The initial step in the environmental justice analysis process is the identification of minority populations and low income populations that might be affected by implementation of the proposed action or alternatives. For environmental justice considerations, these populations are defined as individuals or groups of individuals, which are subject to an actual or potential health, economic, or environmental threat arising from existing or proposed Federal actions and policies. Low-income, or the poverty threshold, is defined as the aggregate annual mean income for a family of four in 2003 correlating to \$18,600.

Low income and minority population data was compared for the Fort Leavenworth ROI, the City of Leavenworth, the Kansas City MSA, and the State of Kansas. This comparative analysis is summarized in Table 4.7. Based on 2003 U.S. Census estimates the percentage of low-income persons

is lower for the Fort Leavenworth ROI (8.3 percent) than for the Kansas City MSA and the State of Kansas.

Table 4.7
Minority and Low-Income Populations, Fort Leavenworth

Jurisdiction	Total Population (2000)	Percent Minority Population (2000)	Median Household Income in Dollars (2003)	Persons Below Poverty (2003)	Percent Persons Below Poverty (2003)
Leavenworth County	68,691	15.9	\$50,659	5,510	8.3
City of Leavenworth	35,420	23.3	NA	2,8551	9.1 ¹
Kansas City MSA	1,776,062	19.2	NA	NA	8.5
Kansas	2,688,418	14.0	\$43,113	278,494	10.4

Source: U.S. Department of Commerce, U.S. Census Bureau, 2000 U.S. Census; Small Area Income and Poverty Estimates, Kansas Counties, U.S. Census Bureau, 2003

¹ Reflects 2000 U.S. Census data

NA = Information not available at this geographic level

According to the 2000 U.S. Census, the percent minority population is lower for the Fort Leavenworth ROI (15.9 percent) than for the Kansas City MSA, but slightly higher than for the State of Kansas. The City of Leavenworth has the highest proportion of minority population of those jurisdictions included in this analysis. The proportion of minority population in Leavenworth County has increased slightly since 1990.

4.8.1.6 Protection of Children

On April 21, 1997, President Clinton issued EO 13045, Protection of Children from Environmental Health Risks and Safety Risks. This EO recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children's bodily systems are not fully developed; because they eat, drink, and breathe more in proportion to their body weight; because their size and weight can diminish protection from standard safety features; and because their behavior patterns can make them more susceptible to accidents. Based on these factors, President Clinton directed each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that might disproportionately affect children. President Clinton also directed each Federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

It is Army policy to fully comply with EO 13045 by incorporating these concerns in decision-making processes supporting Army policies, programs, projects, and activities. In this regard, the Army ensures that it would identify, disclose, and respond to potential adverse social and environmental impacts on children within the area affected by a proposed Army action.

4.8.2 Consequences

4.8.2.1 Alternative 1, No Action Alternative,

Under the No Action Alternative no new construction or renovation would occur on Fort Leavenworth, and ongoing missions associated with the proposed action would be similar to those currently being conducted at the installation. If MTOEs and TDA Correctional Command Military Police forces arrive at Fort Leavenworth without new construction and renovation to accommodate them, there would be a minor short-term direct adverse impact on socioeconomics due to crowding and other adverse social impacts.

4.8.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Direct short-term beneficial economic impacts would be realized by the regional and local economy during the construction phase of Alternative 2.

Employment generated by construction activities would result in wages paid; an increase in sales (business) volume; and expenditures for local and regional services, materials, and supplies. In addition, direct long-term economic impacts in the form of increased business volume, income, and employment would be realized from the increase in operations associated with this alternative.

The Economic Impact Forecast System (EIFS) model, developed by the USACE, Construction Engineering Research Laboratory, was used to assess the impacts of this alternative on the economy. The EIFS model was used to project both the short-term temporary regional economic impacts of project construction, and long-term economic impacts of the increase in installation operations. The EIFS model provides a systematic method for evaluating the regional socioeconomic effects of government actions, particularly military actions.

Using employment and income multipliers developed with a comprehensive regional/local database combined with economic export base techniques, the EIFS model estimates the regional economic impacts with respect to changes in employment generated, and expenditures directly and indirectly resulting from project construction. The EIFS model evaluates economic impacts in terms of regional change in business volume, employment and personal income, and expenditures for local and regional services, materials, and supplies.

The estimated total construction costs of materials and labor is approximately \$23 million (2005 dollars) for the construction of the new facilities. This amount was used as the EIFS input for change in capital costs. The estimated construction period for the new facilities is 2 years. The EIFS employment and income multiplier for the ROI is 2.05.

Table 4.8 provides the estimated direct, indirect, and total annual economic impacts of construction activities on business volume, income, and employment. As a result of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be a \$5.2 million increase in direct annual business volume, a \$2.8 million increase in direct annual personal income; and an increase of 88 direct jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized annually over the length of the construction period. The increase in business volume, income, and employment includes capital expenditures, income, and labor directly associated with the construction activity. Table 4.8 also provides the indirect impacts on business volume, income, and employment as a result of the initial direct impacts of the construction activities.

Table 4.8				
Estimated Annual Economic Impacts, Fort Leavenworth				
Variable	Direct Impacts	Indirect Impacts	Total	RTV¹
Annual Construction Impacts²				
Sales (Business) Volume	\$5,222,546	\$5,483,674	\$10,706,220	0.79%
Income	\$2,865,036	\$1,187,050	\$4,052,087	0.30%
Employment	88	29	117	0.37%
Annual Operations Impacts²				
Sales (Business) Volume	\$7,420,565	\$7,791,594	\$15,212,160	1.12%
Income	\$11,497,750	\$1,686,646	\$13,184,400	0.97%
Employment	404	41	445	1.41%
<i>Source: Economic Impact Forecast System, U.S. Army Corps of Engineers, Construction Engineering Research Laboratory</i>				
¹ Rational Threshold Value				
² 2005 Dollars				

The EIFS model also includes a Rational Threshold Value (RTV) profile that is used in conjunction with the forecast models to assess the degree of the impacts of an activity for a specific geographic area. For each variable (business volume, employment, income, and population), the current time-series data available from the United States Department of Congress Bureau of Economic Analysis are calculated along with the annual change, deviation from the average annual change, and the percent deviation for each of these variables, which then defines a threshold for significant annual regional economic impacts for a variable. Within the EIFS model the RTV is calculated for each of these variables when assessing the regional economic impacts of a specific project. If the RTV for a particular variable associated with the impacts of a specific project exceeds the maximum annual historic deviation for that variable, then the economic impacts are considered to be significant. If the RTV for a variable is less than the maximum annual historic

deviation for that variable, then the regional economic impacts are not considered significant.

Table 4.8 provides the RTV associated with each of the economic impacts resulting from the construction activity. The regional positive RTVs for each economic variable are as follows: sales volume (13.33 percent); income (8.96 percent); employment (4.84 percent); and population (2.40 percent). Thus, the RTV for each of the variables was found to be considerably less than the respective regional RTV. For this reason, construction associated with this alternative would be minor on a regional basis, and not result in significant annual regional economic impacts.

As indicated in Table 4.8, direct annual regional economic impacts would occur as a result of the increased operations under Alternative 2. The increase in operations is based on the realignment of 365 military and civilian personnel to Fort Leavenworth under the proposed action. There would be a direct increase of 404 employees in the government, retail trade, services, and industrial sectors, which would increase the regional economy by \$7.4 million in business volume, and result in \$11.5 million in direct personal income. Employment and income of the permanent party military and civilian personnel are included in the direct employment and direct income. The direct income represents the earnings of employees in the government, retail, wholesale, and service establishments that would be initially or directly affected by the net gain of military and civilian employees. The increase in business volume reflects increases in the sales of goods, services, and supplies to the military and civilian personnel, and other employment directly associated with project operations.

The RTV for each of the economic variables is considerably less than the respective regional RTV. For example, total employment within the Fort Leavenworth ROI would increase by approximately only 1 percent as a result of the increase in on-post operations. For this reason, operations associated with this alternative would have negligible to minor beneficial economic impacts on the Fort Leavenworth ROI.

Minor direct long-term impacts would occur in respect to both on-post and off-post population in the Fort Leavenworth region. On-post military population would increase by approximately 125 assuming that 30 percent of the new military personnel, including a few families, would reside on-post. This represents less than a 2 percent increase in the on-post population.

Under Alternative 2, the off-post population would increase as a result of the relocation of permanent party military and accompanying civilians to the Fort Leavenworth region. In addition to the estimated 94 civilians who would relocate, it is assumed that approximately 50 percent of the anticipated 271 unaccompanied and accompanied permanent party military personnel would reside off-post. This assumption is based on the current lack of suitable on-post housing and the Residential Communities Initiative program being

initiated. Assuming that 60 percent of the military personnel and 80 percent of the civilian personnel are married with 2.3 children per household, the off-post population would increase by approximately 850 people with the addition of these new households. This increase in off-post population would represent a negligible impact (1.5 percent) on the Leavenworth County population.

The relocation of military personnel associated with Alternative 2 would result in short-term moderate adverse impacts to on-post housing. Currently, there is not sufficient on-post housing for unaccompanied enlisted personnel. This extra demand is anticipated to be accommodated with the construction of unaccompanied enlisted personnel housing and barracks associated with the construction of the Internment Battalion Facilities.

It is anticipated that there could be a need for approximately 275 off-post housing units assuming that 50 percent of the permanent party military personnel, in addition to the relocating civilians, live off-post. The majority of the current off-post military and civilian personnel reside in Leavenworth County. According to the 2000 U.S. Census, there were almost 500 vacant housing units advertised for rent in Leavenworth County. Currently, there are more than 400 existing homes listed for sale in Leavenworth County, of which 153 homes are priced below \$150,000. Thus, the existing housing supply is anticipated to be sufficient to accommodate the new long-term demands associated with the Proposed Action. Consequently, impacts of the local and regional off-post housing resources would be minor.

Both off-post and on-post school enrollment would increase as a result of the potential enrollment increase under Alternative 2. It is assumed that the majority of school-age dependents of military personnel would attend off-post schools because of their anticipated off-post residency. However, permanent party military personnel residing off-post can request a waiver for their children to attend on-post schools. Almost all of the impact of increased school enrollment would occur in the Leavenworth United School District #453, which supports the majority of the off-post military personnel, and the on-post Fort Leavenworth School District #207. It is estimated that there could be an additional 550 school-age children of military and civilian personnel associated with the Proposed Action. This estimate is based on the factor of 2.3 children per family, and assuming 60 percent of the military personnel and 80 percent of the civilian personnel are accompanied by family members. The 2005-2006 enrollment of 5,665 students in these two school districts represented slightly less than 70 percent of the total enrollment capacity of approximately 8,300 students. Thus, the anticipated school enrollment increase of approximately 10 percent can be easily accommodated by these two school districts and would represent a minor impact on the school districts.

There are no anticipated adverse socioeconomic impacts of the Proposed Action related to environmental justice and Indian tribal government issues. Some potential short-term minor adverse effects on the protection of children could be expected. Because construction sites can be enticing to children, construction activity could be an increased safety risk. Therefore, during construction, safety measures as stated in 29 CFR 13. 1926, Safety and Health regulations for Construction, and Army Regulation 385-10, Army Safety Program, would be followed to protect the health and safety of all residents on Fort Leavenworth as well as construction workers. Safety measures, barriers and “no trespassing” signs would be placed around the perimeter of construction sites to deter children from playing in these areas, and construction vehicles and equipment would be secured when not in use. These measures would reduce the potential for injuries to children.

- **Indirect Impacts.** The anticipated increase in construction activity, on-post operations, and permanent population under Alternative 2 would have indirect socioeconomic impacts on the Fort Leavenworth region. These impacts would be in respect to employment; income; business volume; housing; educational and community facilities; public services; and government revenues and expenditures.

Indirect short-term beneficial economic impacts would be realized by the regional and local economy during both the construction and operations phases of this alternative. Employment generated by construction activities would result in additional indirect wages paid; an increase in indirect business volume; and indirect expenditures for local and regional services, materials, and supplies as indicated in Table 4.8. Subsequently, annual on-going operations associated with the Proposed Action would also result in the above economic impacts to the local and regional economy.

The indirect economic impacts of the proposed construction activities on business volume, income, and employment also are provided in Table 4.8. As a result of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be approximately a \$5.5 million increase in indirect business volume; a \$1.2 million increase in indirect or induced personal income; and an increase of 29 indirect jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized on an annual basis during the length of the construction period, but would have negligible to minor impacts on the regional economy.

Also provided in Table 4.8 are the annual indirect impacts of the proposed operations on business volume, income, and employment. As a result of direct expenditures for materials, supplies, and services, in addition to direct labor wages, the EIFS model estimates there would be approximately a \$7.8 million increase in indirect business volume; a \$1.7 million increase in indirect or induced personal income; and an increase of 41 indirect jobs created in the

construction, retail trade, service, and industrial sectors. However, these impacts would have a negligible to minor impact on the regional economy.

It is anticipated that the current housing supply should be sufficient to accommodate the additional housing demand associated with the Proposed Action. However, some new housing construction could be encouraged by this new demand. Any new development would be added to the tax rolls, resulting in increased property tax revenues. In addition, there would be increases in sales tax, utility tax, and other revenues resulting from the additional population. Some supportive infrastructure and public services may be subject to additional demand from the new population directly associated with the Proposed Action.

There would be minor indirect impacts on the off-base school facilities as a result of the influx of the military and civilian personnel associated with the Proposed Action. The estimated increase of 550 students could indirectly result in the possibility of a potential need for expansion of certain existing school facilities (e.g. classrooms); a demand for additional staff and classroom teachers; and possibly an increase in the current student/teacher ratio in some schools. In addition, the Leavenworth School District #453 would receive some additional Federal Impact Aid associated with military-affiliated students.

4.8.2.3 Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

- **Direct Impacts.** Direct socioeconomic impacts would be similar to those associated with Alternative 2.
- **Indirect Impacts.** Indirect socioeconomic impacts would be the same as those associated with Alternative 2.

4.9 TRANSPORTATION

4.9.1 Affected Environment

4.9.1.1 Roadways and Traffic

Fort Leavenworth can be reached via Interstate Highways 29 and 70, U.S. Highway 73 (now called Santa Fe Trail and/or County Road 14), U.S. Highways 24-40, and Kansas Highways 92, 7, 45, 192, and 5.

Currently, there are two primary entrances to the post. The Main Gate is located at the intersection of the former U.S. Highway 73 and Grant Avenue. The second entrance, called the West Gate, is located where Hancock Avenue meets the Santa Fe Trail/County Road 14. More remote portions of the installation are served by rock-surfaced or unpaved dirt roads.

Bottlenecks and general congestion are common along Grant Avenue, which is the only four-lane road on the Post, and it is the most convenient entry for most commuters to Fort Leavenworth.

The main transportation corridor near the Alternative 2 site is Sheridan Drive and Kickapoo Road. Other corridors consist of numerous unnamed paved and unpaved roads. Traffic is light due to the lack of residential and business facilities. During construction of the new USDB, the Farm Gate, a former exit to county roads, was used as the primary access route for construction traffic. However, the weight and intensity of use resulted in damage to the rock roadway outside the installation boundary. This gate is now closed.

The main roadways accessing the Alternative 3 site are McClellan Avenue, McPherson Avenue, and Riley Ave.

4.9.1.2 Installation Transportation

Sherman Army Airfield on Fort Leavenworth was established in 1923. The Sherman Army Airfield is used by both the military, and the City of Leavenworth for civilian flights.

The Transportation Motor Pool (TMP) Gas Station is located at Building 152 and includes a large parking area for government vehicles. The TMP Gas Station has one diesel dispenser and two unleaded gasoline dispensers, and is located proximate to the potential development site that would be used if Alternative 3 is selected.

4.9.1.3 Public Transportation

The Fort Leavenworth area is served primarily by the Kansas City International Airport, which is located 18 miles from the installation. The area is also served by several civil airports, including Kansas City Municipal Airport and Johnson County Executive Airport. Passenger rail service is currently available in Kansas City from Amtrak.

4.9.2 Consequences

4.9.2.1 Alternative 1, No Action Alternative

Under the No Action Alternative no new construction or renovation would occur at Fort Leavenworth, and existing ongoing transportation resources would continue to be used and maintained. Therefore, no changes in the existing baseline conditions would be anticipated associated with the deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.9.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Under Alternative 2, there would be short-term minor impacts to transportation at Fort Leavenworth from traffic increases on local roads during construction. Sheridan Road would be used by earth moving vehicles and construction equipment coming to and from the Alternative 2 site. The increased traffic, and the weight of this traffic, may result in damage to the roadway, requiring repairs or increased maintenance, although these repairs should be minor.

- **Indirect Impacts.** Sheridan Road would be used by delivery and maintenance vehicles coming to and from the Alternative 2 site during operation of the facilities, as well as the primary access for personnel working at the proposed COFs and Tactical Equipment Maintenance Facilities. This would result in a minor long-term increase in traffic on local roads at Fort Leavenworth, and an associated negligible increase in the need for routine paving maintenance.

4.9.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

- **Direct Impacts.** Under Alternative 3, there would be short-term minor impacts to transportation at Fort Leavenworth as roads within the cantonment area would be used for construction equipment and vehicles during the project construction period. It is anticipated that development at this site would require some earthwork fill. The hauling of large quantities of earth over the existing roadways coupled with an increase in construction traffic may result in damage to the roadway, requiring repairs or increased maintenance, although these repairs should be minor.
- **Indirect Impacts.** The main roadways accessing the Alternative 3 site are McClellan Avenue, McPherson Avenue, and Riley Ave. There would be long-term minor impacts to traffic as vehicles from the new facilities come and go from the site; thereby resulting in a minor increase in congestion within the cantonment area.

4.10 UTILITIES

4.10.1 Affected Environment

4.10.1.1 Potable Water Supply

Most cities in the Kansas City region rely primarily on the Missouri River and its tributaries for potable water. Potable water for the City of Leavenworth, the City of Lansing, and rural water districts in Leavenworth County are provided by Leavenworth Waterworks Department, which is a quasi-governmental agency. The water supply and treatment facilities for the area served by the Leavenworth Waterworks Department are considered adequate for the next 14 years (CAC, 1992).

A private contractor, American Water, operates the water treatment and distribution system at Fort Leavenworth. Raw water is drawn from five wells located adjacent to the south end of the Sherman Army Airfield and inside the levee from the Missouri River. It is then pumped through a 16-inch cast iron main to the post's treatment plant. At the plant, raw water is treated with lime, soda ash, carbon dioxide, and fluoride, and is filtered and chlorinated. The water treatment plant has sufficient design capacity to support anticipated requirements.

4.10.1.2 Wastewater System

Sewage at Fort Leavenworth is collected by a sanitary sewer system that is metered and discharged through one 30-inch sewer main at the southeast corner of the installation boundary to an off-post wastewater treatment plant owned and operated by the City of Leavenworth. The topography of the reservation allows most of the cantonment area, including the potential development site that would be used under Alternative 3, and the family housing areas in the south-central portion of the post to be served by gravity flow sewers. However, lift stations and force mains are required in areas which cannot be served by gravity, one of which was recently constructed to serve the new Disciplinary Barracks.

Sanity sewage treatment for the potential Alternative 2 site is currently provided by an agricultural sewage lagoon system. If this development alternative is selected, this sewage lagoon system would be removed, and the area connected to the sanitary sewage system for the installation.

Current regulations require that any project which would generate wastewater (other than domestic) and which would be directed to a municipal sanitary sewer for treatment and disposal, would need to contact the municipality and receive authorization regarding the introduction of this wastewater. This requirement is also addressed in Section 4.5.2.2.

4.10.1.3 Storm Water System

The storm water collection system at Fort Leavenworth consists of approximately 152,000 LF of vitrified clay, PVC, and cast iron collection piping with diameters ranging from 3 to 30 inches. The system operates under gravity flow through most of the cantonment area and family housing areas in the south-central portion of the post discharging to a surface connection with the Missouri River. Storm water in the upland area on the west side of the Post is handled primarily in open ditches, though some built up areas and where roads cross ravines have underground drain pipes.

Current regulations require any construction activity that disturbs one or more acres of land must file a National Pollutant Discharge Elimination System (NPDES) permit application for the resulting storm water runoff caused by the construction activity. Prior to starting any construction activity, the owner or operator of the construction project must obtain authorization from KDHE in order to discharge storm water runoff resulting from construction activities. This requirement is also addressed in Section 4.5.2.2.

4.10.1.4 Energy Sources

Electric Service

Fort Leavenworth is supplied electrical power from the Kansas Power and Light (KPL), Division of Western Resources, Inc. Power is delivered from KPL's sub-transmission system at a KPL metering point. Electric facilities are

currently owned and operated by the Leavenworth/Jefferson Cooperative. Three substations and 15 distribution feeders supply the primary voltage to the installation via above ground and underground facilities. The larger portions of the family housing areas and schools on Fort Leavenworth have underground electrical feeder lines. Feeders in and around the airfield and ranges are also underground, and any proposed new facilities are planned for underground placement, where feasible. Underground facilities are a combination of direct-buried facilities, duct and manhole construction, and cable in conduits.

Natural Gas Service

Seminole Energy is the primary provider of natural gas at the installation. Seminole is in their second year of a three-year contract to provide gas via the Southern Star pipeline. At Fort Leavenworth, all buildings in the cantonment area are heated with natural gas.

Outlying areas on the installation not economically served by natural gas are heated with propane.

4.10.1.5 Communications

Official telephone service on Fort Leavenworth is provided by the U.S. Army. There is one main 9,000 line digital switch in the Dial Central Office and eight branch switches. Connectivity to commercial and DISN service is provided by AT&T. Unofficial telephone service in residential areas is provided by Southwestern Bell.

4.10.1.6 Solid Waste

Solid waste generated on Fort Leavenworth is handled differently depending on its source. All residential waste is collected once a week by a private contractor and is disposed of at the Johnson County Landfill in Shawnee, Kansas. Collection frequency from organizations on Fort Leavenworth is dependent upon their generation rate. Solid waste generated from DIS construction and renovation activities is disposed of in the construction and demolition landfill located north of the USDB off Sheridan Drive. The Department of the Army now requires civilian, construction, renovation, and demolition contractors to reduce, reuse, or recycle 50% or greater of the solid waste material from all MILCON projects. At Fort Leavenworth, contractors transport the remaining solid waste off the installation, and dispose of that waste in accordance with applicable regulations.

Fort Leavenworth recycling consists of once a week curbside pickup for family housing. Operation Maintenance Army (OMA) recycling includes office paper which is removed from recycling bins by OMA housekeeping staff.

Composting is another method of reducing the amount of solid waste generated on Fort Leavenworth. The compost pile is now located off of North

Warehouse Road about a quarter mile south of Kinder Range, and is managed by the University of Missouri, Rolla under a two year agreement.

Medical waste (red bags) is taken to the VA Medical Center for incineration.

4.10.2 Consequences

4.10.2.1 Alternative 1, No Action Alternative,

Under the No Action Alternative no new construction or renovation would occur at Fort Leavenworth, and existing on-post utilities would continue to be used and maintained. Therefore, no changes in the existing baseline conditions would be anticipated associated with the deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.10.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Under Alternative 2, there would be minor impacts to utilities at Fort Leavenworth. New sewer laterals and an additional lift station would be installed, and the existing agricultural sewage lagoons near the northwestern corner of the installation would be removed. Storm water management including oil/water separators with holding tanks would be constructed on the Alternative 2 site. A new storm water retention pond would need to accommodate storm water runoff from the new facilities. Potable water supply would need to be extended from the USDB to the proposed facilities. Additionally, electrical and natural gas service for the site would also be extended from a connector near the USDB. A number of additional small generators may be required for the COFs. These generators would be used to support emergency and contingency operation of the facilities should primary electrical service be lost. Other than these extensions of utilities to the proposed facilities, no upgrades to existing utility systems would be necessary, as the existing systems would have adequate capacity to accommodate the new facilities.
- Some construction debris would be generated from the few existing facilities at the site that would be demolished in order to clear the site for redevelopment. This debris would be disposed of by the construction contractor, off-post in accordance with applicable regulations.
- **Indirect Impacts.** Under Alternative 2, there would be minor increases in utility use on Fort Leavenworth from the additional buildings and people stationed at the installation. There would be a negligible increase in utility demands from additional people moving into the surrounding community.

4.10.2.3 Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

- **Direct Impacts.** Under Alternative 3, no additions to utilities would need to be made as the Alternative 3 site is in the cantonment area, which has utility

services capable of supporting the incoming tenants. Utility service lines would require expansion to the existing buildings, and new service extensions would be needed to the proposed Tactical Equipment Maintenance facilities.

- **Indirect Impacts.** Under Alternative 3, there would be minor increases in utility use on Fort Leavenworth from the additional buildings and people stationed at the installation. There would be a negligible increase in utility demands from the surrounding community.

4.11 HAZARDOUS AND TOXIC SUBSTANCES

4.11.1 Affected Environment

4.11.1.1 Uses of Hazardous Materials

Fort Leavenworth maintains programs to minimize and prevent damage to the environment from use of hazardous materials. These programs include:

- the Fort Leavenworth Spill Prevention Control and Countermeasure Plan (CAC, 2000). The SPCC plan identifies measures for preventing and responding to spills of POLs, hazardous materials, and hazardous wastes;
- the Hazardous Waste Management Plan (HWMP) (CAC, 1995). The HWMP includes the objective of reducing quantity and toxicity of wastes generated at Fort Leavenworth. The HWMP provides guidance and assigns responsibility for the safe and proper methods for handling, storing, and disposing hazardous wastes. The post has developed action plans for removing or reducing hazards associated with polychlorinated biphenyls (PCBs), CFCs, halon, lead paint, asbestos and radon. Fort Leavenworth has SOPs that prevent or minimize the potential threat to human health and the environment from working with hazardous and toxic materials.
- a Pollution Prevention Plan with the goal of reducing the impacts of post operations on the environment.

Vehicle operations and maintenance are currently performed by the DIS Vehicle Maintenance activity on the installation. Hazardous materials used in transportation vehicle and tactical equipment maintenance include oils, greases, solvents, gasoline, diesel, lead-acid batteries, antifreeze, and refrigerants.

4.11.1.2 Storage and Handling Areas

Fort Leavenworth activities that use hazardous materials are responsible for ensuring that their handling and storage activities are in accordance with both regulations and Fort Leavenworth Environmental Division Office procedures. The installation's DIS-ENV provides oversight for the program and guidance to individual units that require hazardous material.

4.11.1.3 Hazardous Waste Disposal

Typical hazardous wastes at the installation include oily rags, contaminated fuels, greases, aerosol cans, and any solvents that cannot be recycled.

The installation HWMP requires that hazardous waste be managed, and handled by personnel who are properly trained in hazardous waste handling. The installation program establishes procedures and policies, and assigns responsibilities associated with the generation, handling, management, and disposition of hazardous waste at Fort Leavenworth. The policies and procedures outlined in the plan comply with the RCRA of 1976, the Kansas Hazardous Waste Generators Program, AR 420-47, AR 420-76, and other applicable Federal, State and local regulations. The DIS-ENV provides initial and annual refresher training to representatives of various units operating at Fort Leavenworth that generate hazardous wastes. The training includes specific instruction on the proper procedures for identification, handling, transport, and turn-in of hazardous wastes.

Fort Leavenworth is monitored by the KDHE under the authority of the Kansas Hazardous Waste Generators Program and RCRA. Fort Leavenworth has developed recycling/minimization efforts to reduce the quantity of waste generated. Lead acid batteries, florescent lamps, and high intensity light bulbs are recycled.

Units operating at Fort Leavenworth that routinely generate hazardous wastes are classified as continuous generators of hazardous wastes and are authorized to accumulate a single 55-gallon container for up to 1 year from the date of initial accumulation at specifically-approved satellite accumulation points. Once this threshold is met, the unit has 72 hours to relocate the hazardous waste to the Hazardous Waste Less than 90 day storage/accumulation facility. In order to reduce the potential for spills and accidents associated with the transportation of materials from the approved satellite accumulation points to the hazardous waste accumulation facility, Fort Leavenworth uses the services of the DIS Environmental Division Office who use equipment specifically designed to support this effort. Generation and pickup of hazardous waste is coordinated through the DIS Environmental Division Office Hazardous Waste Program Manager.

Under DIS-ENV, civilian employees operate the less than 90-day hazardous waste accumulation building. The on-post generator is responsible for coordinating with their appropriate HW-trained representative to arrange an appointment with the DIS Environmental Division Office to pick up the waste and take it to the 90-day hazardous waste accumulation facility. Hazardous wastes must be transported off-post for reuse, treatment or disposal within 90 days after arrival. The DIS-ENV maintains an inventory of all hazardous waste received and monitors the storage duration.

Fort Leavenworth's household hazardous waste is collected from individual soldiers and dropped off at the DIS Environmental Division Office, Bldg 80. What is reusable is redistributed and what is not reused is shipped off-post as Hazardous Waste.

4.11.1.4 Petroleum, Oil and Lubricants (POLs)

Used oil from the DIS Vehicle Maintenance Shop is stored in a 500-gallon above ground storage tank and is shipped off of the installation for reuse. An additional collection tank for privately owned vehicles is located at the Army and Air Force Exchange Service (AAFES) Shoppette Car Care, where used oil is also collected and stored in an above ground storage tank prior to be shipped off the installation for reuse.

4.11.1.5 Asbestos

The Fort Leavenworth's asbestos abatement and management program consists of identification, monitoring, determination of health hazards, awareness education, removal and disposal of asbestos. Work is accomplished by qualified contractors. Buildings are surveyed on a case-by-case basis when it is known that planned projects may encounter asbestos or Asbestos Containing Material (ACM). Asbestos and ACM removal is generally completed in conjunction with demolition activities, but may also be performed when needed due to deteriorated conditions or to accomplish other maintenance. Asbestos and ACM are disposed of in accordance with applicable Federal, State and Army regulations.

4.11.1.6 Lead Paint

The Fort Leavenworth lead paint program consists of identification, monitoring, determination of health hazards, awareness education, removal, and disposal of lead paint. A Fort Leavenworth in-house lead paint team identifies lead painted surfaces and provides this information to specification writers, DIS Shops and Housing contractor. Lead wastes are collected by the lead paint contractors and turned over to the DIS Environmental Division Office for proper disposal.

4.11.1.7 Site Contamination and Cleanup

Under Alternative 2, the area known as the USDB Farm site would be redeveloped. The site is in the northwest corner of the installation where the boundary shifts about 1/2 mile to the east. Two sewage treatment lagoons are located here. The lagoons were constructed in 1980 to contain runoff from the USDB Farm operations. The facility consisted of an upper lagoon (No. 1), that is approximately 75 feet by 120 feet by 17 feet deep and a lower lagoon (No. 2) that is approximately 150 feet by 350 feet by 8 feet deep.

The lagoons, classified as agricultural waste lagoons by the KDHE, were used to treat livestock waste. They were upgraded in 1993 by sealing the bottoms and installing irrigation equipment. The irrigation equipment was

used to apply water from the lower lagoon to pastureland to the west. The purpose of the equipment was to increase evaporation and to keep the non-discharge status. In 1996, the USDB Farm closed and the lagoons were re-permitted to use only Lagoon No. 1 for sewage treatment of human wastes. Although restoration is required, this site is still active. KDHE regulations would require site closure when this system ceases operation. Closure would require removal of the lagoon materials, if there are to be no restrictions on future use. If encapsulation is used as a method of closing the lagoons, the future use of the area would be restricted to those activities which would not damage the cover material or the cap.

The presence of small amounts of copper sulfate is probable in the area of the proposed site for Alternative 2. The KDHE, Bureau of Environmental Remediation has the site currently under investigation but has not characterized copper sulfate as a contaminate or hazardous waste. Nonetheless, Fort Leavenworth has acknowledged that copper sulfate was previously used in support of USDB farm operations and as a precaution had some soil removed and continues to cooperate with the KDHE.

4.11.2 Consequences

4.11.2.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, no new construction or renovation would occur at Fort Leavenworth, and existing installation procedures associated with the procurement, handling and storage of hazardous materials, and the management, collection and disposal of hazardous waste would be continued. Therefore, there would be no anticipated changes in the existing baseline conditions associated with the stationing of deployable MTOE Correctional Command MP units at Fort Leavenworth.

4.11.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

- **Direct Impacts.** Under this alternative, the area known as the USDB Farm would be developed to support the transportation operation and maintenance function for MP units. Dirt piles, concrete pads, and existing buildings would be demolished, except for Building 424. It is a historic building. The lagoons would be closed. New buildings and parking lots would be constructed, and connections to the nearby USDB facility's storm water and sanitary systems would be made.

The existing sewage treatment lagoon system would have to be closed. Lagoon material would have to be removed in order to use the land without restrictions. The removal of the sewage treatment lagoon system and the associated lagoon material would be accomplished in accordance with all applicable state and federal laws and regulations.

During demolition of old buildings, there would be minor potential for exposure to asbestos particles, dust from lead paint, or PCB containing transformers.

Construction equipment has a minor potential for spills or leaks of antifreeze, hydraulic fluid, oil, and fuel. Contractor spill plans and response equipment would be required and utilized throughout the construction phase to minimize the potential of spills.

During operation of the redeveloped site, there would be minor potential for accidental spills of hazardous and toxic materials such as antifreeze, grease, hydraulic fluid, oil, and fuel. In addition to the potential spills during normal operations, an additional spill potential exists during delivery of hazardous substances since roads leading to the proposed site are very steep.

Types of hazardous materials and hazardous wastes being handled under this alternative would include those that have been traditionally handled in during vehicle maintenance tasks (POLs and "spent" POLs). However, for this proposed site, the definition of hazardous materials includes ammunition, supplies for cleaning weapons, and contaminants found in soil and water.

Beneficial impacts of the site are that the vehicle and equipment maintenance facility for the MP units would be in close proximity to the USDB. Locating these units and their logistical supplies at this site facilitates mission sustainability and deployment readiness.

While not characterized as a hazardous material or hazardous waste, it has been confirmed that small amounts of copper sulfate are present in soil at this proposed site. KDHE continues to investigate, and Fort Leavenworth is cooperating fully with KDHE recommendations. Pending characterization by the KDHE, Fort Leavenworth would continue to treat the copper sulfate as a material of concern. Attempts would be made to avoid or minimize disturbance of soil suspected of containing copper sulfate, and Fort Leavenworth would continue to cooperate with KDHE on this issue.

- **Indirect Impacts.** Minor accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels could possibly occur while these materials are being delivered or taken from this facility due to surrounding road steepness. If spills do occur, contact the DIS Fire Department first and then the DIS Environmental Division Office. Spill impacts would be minimized to inconsequential levels by conducting cleanups in accordance with Federal, State and local regulatory requirements as directed by the Fort Leavenworth SPCC plan. Additionally, grade steepness could be minimized during development of the site and associated roadway paving.

4.11.2.3 Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264

- **Direct Impacts.** Under this alternative, the COF and transportation vehicle and tactical equipment operation and maintenance functions for MP units stationed at the USDB would be performed in and proximate to Buildings 109, 262, 263, and 264. These buildings would be renovated to accommodate this alternative. Types of hazardous materials and hazardous wastes being handled under this alternative would include those that have been traditionally handled in these buildings during vehicle maintenance tasks. Building renovation has the potential for minor short-term adverse impacts if persons are exposed to asbestos particles, dust from lead paint, Fluorescent Light Bulbs or PCB ballasts in lights. Contact the DIS Environmental Division Office Hazardous Waste Program Manager to schedule a pickup. Minor accidental spills of hazardous and toxic materials such as antifreeze, hydraulic fluid, and fuels may occur while renovating and operating these facilities.
- **Indirect Impacts.** No changes from baseline conditions are expected under Alternative 3, except that two additional vehicle and tactical equipment maintenance facilities would be generated at the installation. Indirect impacts from this alternative are similar to those of Alternative 2.

4.12 CUMULATIVE EFFECTS SUMMARY

4.12.1 Introduction

The cumulative impact analysis evaluates the incremental effects of implementing any of the alternatives when added to past, present, and reasonably foreseeable future U.S. Army actions at Fort Leavenworth and the actions of other parties in the surrounding area, where applicable. The cumulative impact analysis has been prepared at a level of detail that is reasonable and appropriate to support an informed decision by the U.S. Army in selecting a preferred alternative. The cumulative impact discussion is presented according to each of the implementation alternatives listed.

The key components of the cumulative impact analysis include the following:

- **Cumulative Impact Analysis Area.** The cumulative impact analysis area includes the area that has the potential to be affected by implementation of the proposed action at Fort Leavenworth. This includes the installation and the area immediately proximate to the installation boundary and varies by resource category being considered:
 - **Air Quality.** The cumulative impact analysis area for air quality includes all areas within the boundaries of the installation and within the regional air quality region.
 - **Noise.** The cumulative impact analysis area for noise is areas within and proximate to the proposed development sites.

- **Geology and Soils.** The cumulative impact analysis area for geology and soils, including and topography is defined by the installation boundary.
- **Water Resources.** The cumulative impact analysis area for water resources, including physiography and surface drainage, surface water, surface water quality, groundwater, floodplains, and storm water is defined as the installation boundary.
- **Biological Resources.** The cumulative impact analysis area for biological resources includes the installation and areas immediately surrounding the installation. The analysis includes fish and wildlife, vegetation resources, wetlands, Federal threatened and endangered species, other species of concern, and INRMP provisions.
- **Cultural Resources.** The cumulative impact analysis area for cultural resources includes the installation's historic buildings and districts, and the associated views to and from these areas.
- **Socioeconomic Environment.** The cumulative impact analysis area for socioeconomic environment is the ROI. The analysis includes consideration of the regional economy and demographics; Fort Leavenworth's population and economic impact; Native American and other ethnic concerns; environmental justice; homeless programs, impacts to children and other special programs; and community services (i.e., police protection, fire protection, and emergency services).
- **Transportation.** The cumulative impact analysis area for transportation is defined by the installation boundary and the area immediately proximate to installation boundary.
- **Utilities.** The cumulative impact analysis area for utilities is defined by the installation boundary and the area immediately proximate to installation boundary. The analysis includes consideration of potable water supply, wastewater collection and treatment, energy systems, communications systems, and solid waste disposal and landfills.
- **Hazardous and Toxic Materials.** The cumulative impact analysis area for hazardous and toxic materials includes all areas within the installation boundaries.
- **Past and Present Actions.** Past actions are defined as actions within the cumulative analysis area under consideration that occurred before November 2005 (the environmental baseline for this EA). These include past actions at Fort Leavenworth and past demographic, land use, and development trends in the areas that surround the installation.

In most cases, the characteristics and results of these past and present actions are described in the Affected Environment sections under each of the resource categories covered in this EA. Past and present actions that have been identified and considered in the analysis of cumulative impacts are listed below. These

actions are grouped to indicate those that are anticipated on-post and those that are anticipated off-post.

- **Reasonably Foreseeable Future Actions.** Reasonably foreseeable future actions are mainly limited to those that have been approved and that can be identified and defined with respect to timeframe and location. Reasonably foreseeable future actions that have been identified and considered in the analysis of cumulative impacts, both on-post and off-post are listed below.
 - Update of the Installation Real Property Master Plan to include planning for future actions.
 - Consolidation of Industrial/Maintenance activities in one central area.
 - Continuation of past and present actions as discussed above. It is anticipated that other military missions and future training activities at Fort Leavenworth are expected to remain relatively constant into the foreseeable future.
 - Continuation of present management actions, and the modification of these management actions, as necessary, to ensure compliance with regulations.
 - Building or system renewals or replacements, construction of new buildings or systems, expansions and improvements in existing buildings, and street and road improvements would continue as needed to fulfill mission requirements at Fort Leavenworth that are not included in the proposed action or alternatives.
 - Continuation of present management actions within the surrounding civilian community and the continuation of existing civilian development trends.
 - Continued civilian encroachment around the Fort Leavenworth installation would continue.
 - The City of Leavenworth has a list of 12 construction projects that are proposed for future construction. A description of these projects was found on their website <http://www.lvks.org/construction.htm>.
 - A new Shawnee Street Bridge is planned to be constructed over Three-Mile Creek. Construction is expected to begin winter/spring 2006 and be completed in fall 2006.
 - A new Sixth Street bridge has been designed and utility relocation is currently underway. The bridge is scheduled for replacement in 2006.
 - In October 2005, flooding disabled one of the City of Leavenworth's main sewer siphons located at the mouth of Three Mile Creek. A temporary workaround pumping operation was established and construction of a replacement siphon is currently underway.
 - The Wollman Park Improvement project has completed Phase I and is currently under Phase II. Tennis courts were removed and would be replaced with a grassy open area. In addition, a new playground, a new restroom facility, and an additional parking area would be constructed.

- A new Army Reserve building is being constructed at the intersection of 20th Street and Metropolitan. This is not a City of Leavenworth project so the City has limited information about this project and its schedule.
- Grading of the remaining lots of the proposed Industrial Park has been approved. This project is a 50/50 cost share between the City of Leavenworth and the Leavenworth County Port Authority.
- Phase I of the Wastewater Treatment Plant improvements were completed in fall 2005. The Phase II improvements would add new trickling filters and control equipment to the Wastewater Treatment Plant. These improvements are planned to be completed in 2006.
- The Downtown Ramp and Sidewalk Improvement project is planned to repair ramps and sidewalks located throughout the southern portion of downtown.
- Permitting for a Three-Mile Creek Walking Trail has been completed. This project is to build a walking/bike trail and to beautify Three-Mile Creek from Landing Park to Haymarket Square.
- The intersection of 10th and Metropolitan is to be widened.
- Kansas Department of Transportation (KDOT) awarded Leavenworth with a grant to redesign and update Delaware Street from Esplande to 6th Street. This project is currently in the design phase and construction is planned to begin in 2007.
- The City of Leavenworth is working with TransSystems to redesign the 18th and Metropolitan Interchange in order to increase safety and accessibility to the back entrance to Fort Leavenworth. Currently \$3.7 million in funding has been acquired from the City of Leavenworth, KDOT, and Federal funding, and additional funding is being pursued.

Based upon the following environmental analysis, none of the cumulative impacts identified were considered significant. A list of BMPs and other measures that would be implemented to avoid or reduce adverse environmental consequences are included in Section 4.13 of this EA.

4.12.2 Potential Cumulative Impacts

4.12.2.1 Alternative 1, No action Alternative

Under Alternative 1, No Action Alternative, it is anticipated that past and present development trends on the installation and the surrounding civilian community would continue. However, for realignment actions directed by the BRAC Commission, it would be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are congressionally-mandated actions.

4.12.2.2 Alternative 2, New Facilities near the United States Disciplinary Barracks (Preferred Alternative)

The cumulative impacts of Alternative 2 by resource category are as follows:

- **Air Quality.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative impacts to air quality. Increases in fugitive dust from construction projects on- and off-post could combine with particulate matter generated through training activities and other previously approved construction projects at the installation. These emissions would accumulate with other pollutants from adjacent and regional activities.
- **Noise.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative noise impacts. Construction of the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased noise.
- **Geology and Soils.** Implementation of Alternative 2 is anticipated to have short-term minor adverse cumulative impacts to geology and soils. Construction of the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result in increased soil erosion, removal, and compaction. The proposed Alternative 2 construction site is undeveloped land. However, many of the future development projects to occur in the City of Leavenworth are to occur on previously developed sites. Therefore the cumulative impact to soil resources is anticipated to be minor.
- **Water Resources.** Implementation of Alternative 2 is anticipated to have short-term and long-term minor adverse cumulative impacts to water resources. Construction of the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation would involve dirt work and the removal of vegetation that would result in increased water runoff and soil erosion both on the installation and down slope off of the Fort Leavenworth property. This increased runoff may contain sediment, contaminants, and other construction-related debris. Sediment loading in streams may increase turbidity and affect other water quality parameters such as dissolved oxygen, pH, conductivity, and heavy metal concentrations, which in turn could affect fish and wildlife. Short-term cumulative impacts would occur due to direct soil disturbance from training and construction activities. Long-term cumulative impacts would occur due to the increase in impermeable surfaces that would increase the quantity and speeds of run-off.
- **Biological Resources.** Implementation of Alternative 2 is anticipated to have long-term minor adverse cumulative impacts to biological resources. The proposed Alternative 2 construction site is undeveloped; however the site is a previously disturbed area that was formerly used for agriculture. BRAC and

non-BRAC construction projects occurring on the installation in combination with surrounding community development projects would result in adverse cumulative impacts to biological resources with the removal of flora and the displacement of fauna.

- **Cultural Resources.** Implementation of Alternative 2 is anticipated to have no cumulative impacts to cultural resources. There are currently no known cultural resources located at the proposed Alternative 2 construction site. A Phase I Cultural Resource Survey is currently under way at this site. Although the results of this survey were not available prior to the completion of this EA, Fort Leavenworth would follow existing laws and regulations protecting cultural resources. The results of this survey would be provided to the SHPO and the decision maker of the proposed action for their evaluation.
- **Socioeconomics.** Implementation of Alternative 2 is anticipated to have direct and indirect short-term beneficial cumulative economic impacts to the regional and local economy during the construction phase. Beneficial long-term cumulative impacts would be realized by the increased operations of the BRAC proposed action in combination with non-BRAC proposed on-post actions and construction projects. Other on-post construction activities, in addition to those previously addressed, include the BRAC-related JRCF; three Battalion Headquarters; unaccompanied enlisted personnel housing; dining facility; and additions to the Harold Youth Center and Harney Gymnasium. The total estimated construction cost of materials and labor for all of these facilities is approximately \$156 million pro-rated over a period of 2 1/2 years.

Table 4.9 provides the total direct and indirect cumulative annual economic impacts of the proposed construction activities on business volume, income, and employment during the course of the construction period. As a result of construction expenditures for materials, supplies, and services, in addition to construction labor wages, the EIFS model estimates there would be approximately a \$56.5 million annual increase in total business volume; \$20.9 million annual increase in total personal income; and an increase of approximately 600 jobs created in the construction, retail trade, service, and industrial sectors. These impacts would be realized on an annual basis during the length of the construction period, but would have negligible to minor impacts on the regional economy.

Table 4.9 Estimated Annual Cumulative Economic Impacts – Fort Leavenworth				
Variable	Direct Impacts	Indirect Impacts	Total	RTV¹
Annual Cumulative Construction Impacts²				
Sales (Business Volume)	\$27,577,610	\$28,956,490	\$56,534,100	4.71%
Income	\$14,642,280	\$6,268,209	\$20,910,490	1.55%
Employment	447	154	601	1.90%
Annual Operations Impacts²				
Sales (Business Volume)	\$7,420,565	\$7,791,594	\$15,212,160	1.12%
Income	\$11,497,750	\$1,686,646	\$13,184,400	0.97%
Employment				
<i>Source: Economic Impact Forecast System, U.S. Army Corps of Engineers, Construction Engineering Research Laboratory</i>				
¹ Rational Threshold Value				
² 2005 Dollars				

In addition, the increased operations associated with the Proposed Action results in increased military and civilian payrolls, and an increase in on-post expenditures for services and supplies. The increase in on-post employment associated with the Proposed Action results in additional off-post business volume, income, and employment.

Off-post demand for additional housing and supportive services in the surrounding communities when combined with on-installation development would result in long-term cumulative economic impacts. Other cumulative socioeconomic impacts include an increase in school enrollment, increased demand on public services, and an enhanced tax base and tax revenues resulting from the increase in population.

- **Transportation.** Implementation of Alternative 2 is anticipated to have minor short-term adverse cumulative impacts to transportation. Traffic congestion could increase due to construction equipment entering and leaving the construction site combined with other BRAC and non-BRAC related construction activities on the installation.
- **Utilities.** Implementation of Alternative 2 is anticipated to have moderate beneficial cumulative impacts to utilities. Implementation of BRAC related construction projects, which includes updates and continued expansion of the utilities would have a long-term cumulative beneficial impacts on the installation when combined with updates to utilities on non-BRAC related projects and off-installation utility improvements.
- **Hazardous and Toxic Substances.** Implementation of Alternative 2 is anticipated to have potential minor short-term adverse cumulative impacts from hazardous and toxic substances. Construction of the new COFs and equipment maintenance facilities in combination with training activities and other previously approved construction projects at the installation would result

in increased potential for adverse impacts from hazardous and toxic substances.

4.12.2.3 **Alternative 3, Redevelopment and New Facilities near Buildings 109, 262, 263 and 264**

Cumulative impacts under Alternative 3 by resource category as follows:

- **Air Quality.** It is anticipated that cumulative impacts to air quality under Alternative 3 would be the same as those of Alternative 2.
- **Noise.** It is anticipated that cumulative noise impacts under Alternative 3 would be the same as those of Alternative 2.
- **Geology and Soils.** It is anticipated that cumulative impacts to geology and soils under Alternative 3 would be the same as those of Alternative 2.
- **Water Resources.** It is anticipated that cumulative impacts to water resources under Alternative 3 would be the same as those of Alternative 2.
- **Biological Resources.** It is anticipated that cumulative impacts to biological resources under Alternative 3 would be the same as those of Alternative 2.
- **Cultural Resources.** It is anticipated that there would be minor long-term adverse cumulative impacts to cultural resources. Implementation of Alternative 3 would utilize existing historic buildings that are listed on the NRHP. Under this alternative Fort Leavenworth would ensure that the SHPO concurs with the planned renovation activities at each of the buildings. Consultation with the SHPO would be conducted so that renovations would be consistent with the architecture of these buildings and minimal impacts would occur to these cultural resources. The Army standard designs for these facilities would be modified to ensure that the exterior of the buildings would not result in adverse impacts to the views from these buildings or other proximate historic structures.
- **Socioeconomics.** It is anticipated that cumulative socioeconomic impacts under Alternative 3 would be the same as those associated with Alternative 2.
- **Transportation.** It is anticipated that cumulative impacts to transportation under Alternative 3 would be the same as those of Alternative 2.
- **Utilities.** It is anticipated that cumulative impacts to utilities under Alternative 3 would be the same as those of Alternative 2.
- **Hazardous and Toxic Substances.** It is anticipated that cumulative impacts from hazardous and toxic substances under Alternative 3 would be the same as those of Alternative 2.

4.13 **MITIGATION AND BEST MANAGEMENT PRACTICES SUMMARY**

As discussed in Sections 4.2 through 4.12 above, no significant adverse or significant beneficial impacts have been identified or are anticipated as a result of implementing

any of the proposed action alternatives or the No Action Alternative. Consequently, no mitigation measures are required to reduce impacts to non-significant levels as part of this EA.

In accordance with definitions provided in 40 CFR 1508.20 (a–e) and 32 CFR Part 651.15, measures can be taken to diminish adverse impacts in the following ways:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

In association with the proposed action, Fort Leavenworth has identified a number of Best Management Practices (BMP) that would be implemented with the proposed construction activities, regardless of the alternative selected. These measures are designed to avoid, rectify, or reduce adverse impacts. Fort Leavenworth would work with governmental agencies to comply with the respective regulations and avoid adverse impacts wherever possible. Wherever reasonable and possible to do so, unavoidable adverse impacts would be lessened under coordination with the appropriate agencies.

For those adverse impacts that cannot be avoided, the BMPs include features designed to: protect, maintain, restore, or enhance environmental conditions. These BMPs are summarized below:

- Trees and vegetation would be maintained and structural erosion control practices would be employed according to standards and specifications of the State of Kansas and/or the USEPA document Stormwater Management for Construction Activities. The more stringent of the State of Kansas or the USEPA standards would be employed. All areas disturbed by construction activities would be replanted (with either seeds or sod) unless the area is to be paved or built on. Provisions for the reestablishment of both temporary and permanent vegetative cover (through plantings, seeding, or sod) would be included in all construction projects. This effort would include: the removal and stockpiling of top soil, spreading top soil after construction, seeding and/or mulching disturbed areas, and using existing natural features for landscaping at development sites. Landscaping of development sites would be accomplished through the use of native and ornamental plants, with an emphasis placed on the use of native plantings. Coordinate with the DIS Environmental Division Office Natural

Resource Program Manager concerning the choice of native plants, grass, trees and shrubs.

- Mulching, silt fences, sediment traps, straw berms, temporary cover crops, and other erosion control BMPs would reduce soil erosion at the site. Erosion controls detailed in NRCS Critical Area standards and those required by the State of Kansas storm water discharge permits for construction sites as well as other BMPs would be used, where applicable, to reduce erosion and protect the water quality of receiving streams. Although BMPs are not 100 percent effective in preventing sediment run off, the proponent would ensure that the construction contractor complies with established permits and RMP requirements.
- Construction would follow the State of Kansas Clean Water regulation requirements for construction activities. Provisions for surface water control, including the construction of drainage swales, and both temporary and permanent surface water control ponds, would be provided where required during implementation of the storm water control plan. Surface water retention and control ponds would also provide sediment control as required, reducing the potential for sediment being transported from construction and training sites and into surface water resources. All erosion and sediment control measures are to be in place prior to, or as the first step in, construction. Restricting the movement of construction and other equipment in wet weather conditions would reduce adverse impacts to species habitat. All of these impacts would be minimized through the use of proper construction techniques and BMPs that would reduce or eliminate most adverse impacts to aquatic species.
- In accordance with Section 404 of the CWA and EO 11990, wetlands must be protected from development, silting, and other degradation. Through the NEPA review process, all soil disturbing activities are reviewed to ensure that impacts to wetlands are avoided or minimized. Section 404 permits from the USACE are obtained for unavoidable impacts. Erosion sites that appear to affect wetlands receive high priority in the Land Rehabilitation and Maintenance program. Before land disturbing activities are initiated, an environmental review is conducted to ensure that wetlands would not be affected. Timber harvesting may be conducted in wetlands provided that operations are in accordance with applicable U. S. Army Corps of Engineers and USEPA requirements and conditions. Any proposed cutting would be coordinated with the DIS Environmental Division Office Natural Resource Program Manger. Wheeled or tracked vehicle traffic is not allowed in wetlands.
- Provisions would be taken during the construction of the roadways to help preclude the introduction of pollutants into the groundwater systems in the area. Standard well head protection measures used during construction, when coupled with design features intended to manage the flow of surface water, should preclude impacts to domestic drinking water sources in the area.
- Clearing and grubbing would be sequenced with construction to minimize the exposure time of cleared surfaces. These activities would not be conducted

during periods of wet weather. Building these structures during dry periods and implementing proper construction techniques can minimize possible impacts to water quality. Construction activities would also be staged to allow for the stabilization of disturbed soils.

- Techniques to minimize fugitive dust would be employed. For example, if dry weather conditions favor dusty conditions, dust suppression would be applied at the development site. All controls on fugitive dust would conform to regulations.
- To prevent erosion, the Directorate of DIS Facility Support Division routinely hydroseeds areas where soil disturbance has occurred. Construction project designs are reviewed to ensure that required Storm water Management and Sediment Reduction Permits and/or NPDES Storm Water Pollution Prevention Plans (SWPPP) are prepared for the proposed action. Once construction begins, inspections are made to ensure that erosion control plans are implemented.
- If development is proposed in areas that have not been surveyed for cultural resources, Fort Leavenworth would commit to completing a Phase I survey of the areas prior to development.
- The installation would ensure, to the extent possible, that all potentially eligible historic properties, as well as any known or suspected cemeteries, would be properly marked by the construction contractor with construction tape or fencing prior to any ground disturbance. Personnel involved in the construction activities would be informed that they are not allowed to traverse through the marked areas, nor use the marked areas for equipment, materials, or vehicle staging.
- For those buildings are on the NRHP, strict standards from the Kansas State Historical Society would be followed to ensure retention of detail such as masonry, wood, metal, roofs, porches, windows, moldings, stairways, and spatial relationships. Before work begins, the existing condition of historic features would be evaluated to determine the appropriate level of intervention needed. Attempts would be made to use like materials when making interior structural changes to allow for the maneuverability limitations of the new types of vehicles. Efforts would be made to ensure that alterations do not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes.
- If avoidance is not possible, then additional steps would need to be implemented. Cultural resources considered eligible for Section 106 undertakings, but that lack sufficient information to determine NRHP eligibility, would be evaluated prior to construction activities. Evaluative testing and other tasks associated with eligibility determinations would follow procedures outlined in the ICRMP. The ICRMP outlines procedures to follow in the event of an unanticipated discovery during construction.

4.14 CONCLUSIONS, FINDINGS, AND RECOMMENDATIONS

As noted in this analysis, direct, indirect, and cumulative impacts of the each of the proposed action alternatives and the No Action Alternative have been considered and

no significant impacts (either beneficial or adverse) have been identified. However, for realignment actions directed by the BRAC Commission, it would be noted that for the No Action Alternative, maintenance of current conditions is not feasible, since the BRAC actions are Congressionally-mandated actions.

Therefore, of the alternatives considered, Alternative 2 and Alternative 3 could be implemented. Implementation of either Alternative 2 or Alternative 3 would meet the needs of the Fort Leavenworth mission. Alternative 2, the Preferred Alternative, would construct the facilities at the optimal location and would allow for the greatest flexibility in the design of these facilities. However, since this would be new construction, this alternative would have greater environmental impacts and would not utilize existing structures. Implementation of Alternative 3 would locate the new facilities at a site that is less than optimal. Locating the new facilities away from the USDB would not be as convenient or efficient for various aspects of the Fort Leavenworth mission. The facility designs under Alternative 3 would be more limited since existing facilities would be used. Some of these are historic buildings and their historic character must be protected. However, this alternative would have fewer environmental impacts and would utilize existing facilities.

SECTION 5

ACRONYMS

A		DoD	Department of Defense
AHP	Advisory Council on Historic Preservation	E	
ACM	Asbestos Containing Material	EA	Environmental Assessment
AQCR	Air Quality Control Region	EIFS	Economic Impact Forecast System
AAFES	Army and Air Force Exchange Service	EIS	Environmental Impact Statement
ARPA	Archaeological Resources Protection Act	EMCS	Energy Monitoring and Control Systems
ATFP	Anti-Terrorism/Force Protection	EO	Executive Order
		ESA	Endangered Species Act
B		F	
BCT	Brigade Combat Team	FPPA	Farmland Protection Policy Act
BMP	Best Management Practice	FNSI	Finding of No Significant Impact
BRAC	Base Closure and Realignment	G	
C		H	
CAA	Clean Air Act	HMMWV	High-Mobility Multi- purpose Wheeled Vehicles
CDC	Child Development Center	HVAC	Heating, Ventilation, and Air Conditioning
CEQ	Council on Environmental Quality	HWMP	Hazardous Waste Management Plan
CFR	Code of Federal Regulations	I	
COF	Company Operations Facility	ICUZ	Installation Compatible Use Zone
CWA	Clean Water Act	IDS	Intrusion Detection Systems
D			
DENIX	Defense Environmental Network and Information Exchange		

IGPBS	Integrated Global Presence and Basing Strategy	NAGPRA	Native American Graves Protection and Repatriation Act
INRMP	Integrated Natural Resources Management Plan	NCA	Noise Control Act
		NEPA	National Environmental Policy Act
		NHL	National Historic Landmark
J		NHLD	National Historic Landmark District
JRCF	Joint Regional Correctional Facility	NHPA	National Historic Preservation Act
K		NRHP	National Register of Historic Places
KAFS	Kansas Archaeological Field School	NWI	National Wetlands Inventory
KDHE	Kansas Department of Health and Environment		
KDOT	Kansas Department of Transportation	O	
KDWP	Kansas Department of Wildlife and Parks	OMA	Operation Maintenance Army
KPL	Kansas Power and Light	P	
		PCB	polychlorinated biphenyl
L		Q	
LESA	Land Evaluation and Site Assessment	R	
		RCRA	Resource Conservation and Recovery Act
M		ROI	Region of Influence
MOA	Memorandum of Agreement	RTV	Rational Threshold Value
MP	Military Police		
MSA	Metropolitan Statistical Area	S	
MTOE	Modified Table of Organization and Equipment	SF	square foot or square feet
		SHPO	State Historic Preservation Officer
		SINC	Species in Need of Conservation
N		SUA	Support Unit of Action
NAAQS	National Ambient Air Quality Standards	SWPPP	Storm Water Pollution Prevention Plans

T

TCP	Traditional Cultural Property
TDA	Table of Distribution and Authorization
TMP	Transportation Motor Pool
TSCA	Toxic Substances Control Act

U

UA	Unit of Action
UE	Unit of Employment
USDA	United States Department of Agriculture
USDB	United States Disciplinary Barracks
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

V**W****X****Y****Z**

SECTION 6

REFERENCES

References that were used during the development of this EA include the following:

Reference	Description
BEA, 2004	United States Department of Commerce, Bureau of Economic Analysis, Employment by Industry by Place of Work, 2004.
BLS, 2004	United States Department of Labor, Bureau of Labor Statistics, Civilian Labor Force and Unemployment Rates, 2004.
CAC, 1992	Combined Arms Command and Fort Leavenworth, 1992. Installation Environmental Assessment of the Ongoing Mission, Operations/Master Plan. Fort Leavenworth, Kansas.
CAC, 1995	Combined Arms Command and Fort Leavenworth, 1995. Hazardous Waste Management Plan. Fort Leavenworth, Kansas.
CAC, 1997	Combined Arms Command and Fort Leavenworth, 1997. Environmental Assessment for Construction of U.S. Disciplinary Barracks. Fort Leavenworth, Kansas. Prepared by Burns and McDonnell.
CAC, 1999a	Combined Arms Command and Fort Leavenworth, 1999. Integrated Natural Resources Management Plan. Fort Leavenworth, Kansas.
CAC, 1999b	Combined Arms Command and Fort Leavenworth, 1999. Environmental Assessment for the Proposed Integrated Natural Resources Management Plan. Fort Leavenworth, Kansas.
CAC, 2000	Combined Arms Command and Fort Leavenworth, 2000, Spill Prevention Control and Countermeasure Plan. Fort Leavenworth, Kansas
CAC, 2001	Combined Arms Command and Fort Leavenworth, 2001. Installation Action Plan. Fort Leavenworth, Kansas.
CAC, 2003	Combined Arms Command and Fort Leavenworth, 2003. Integrated Cultural Resource Management Plan. Fort Leavenworth, Kansas.
Fort Leavenworth, 2005	Fort Leavenworth, Public Affairs Office, 2005.
Fort Leavenworth, 1995	Logan, Brad, Ritterbush, Lauren W., Hesse, India S., 1995. The DB Site National Register Evaluation of a Multicomponent Occupation Fort Leavenworth, Kansas. University of Kansas
KAC, 2005	Kansas Department of Social and Rehabilitation Services, 2005
KDHE, 2004	Kansas Department of Health and Environment, Bureau of Air and Radiation, 2004. 2003-2004 Kansas Air Quality Report.
KDHE, 2005	Kansas Department of Health and Environment, Bureau of Air and Radiation, 2005. 2004-2005 Kansas Air Quality Report.
Nowak, 2006	Matt Nowak, Fort Leavenworth, DIS Environmental. Personal communication. March 23, 2006.

SCS,1977	Soil Conservation Service, 1977. Survey of Wyandotte and Leavenworth Counties, Kansas.
USEPA, 2006	U.S. Environmental Protection Agency, 2006. "Welcome to the Green Book Nonattainment Areas for Criteria Pollutants." http://www.epa.gov/oar/oaqps/greenbk/
USACE	United States Army Corps of Engineers, Construction Engineering Research Laboratory, Economic Impact Forecast System (EIFS).
USACE KCD, 2003	Fort Leavenworth, 2003. Environmental Assessment for Physical Security Enhancements at Fort Leavenworth, Kansas. Fort Leavenworth, Kansas. Prepared by Parsons.
USCB, 1990, 2000, 2005	United States Department of Commerce, U.S. Census Bureau, Population Division, 1990 and 2000 U.S. Census; Population and Housing Characteristics; Population Estimates and Projections; Components of Population Change.
USCB, 2003	United States Department of Commerce, U.S. Census Bureau, Small Area Income and Poverty Estimates, 2003.
USDA, NRCS, 2006	U.S. Department of Agriculture, Natural Resources Conservation Service, 2006. "Web Soil Survey." http://websoilsurvey.nrcs.usda.gov/app/

SECTION 7

LIST OF PREPARERS

Personnel involved in the development of this EA include the following:

Name	Education and Experience	Primary Responsibilities
Darrel B. Sisk, Jr.	B.E.D. Environmental Design; M.S. Architectural Engineering; 17 years experience in base civil engineering, military planning and environmental planning and impact assessment.	Project Manager/Senior Project Planner; data collection and key participant in description of proposed action, alternatives formulation, and related environmental analyses.
Donald Beisel	B.S. Geography; M.A. Geography; 28 years of experience in community/urban planning, environmental planning, and socioeconomic studies.	Senior Project Planner; data collection and preparation of socioeconomic analysis and related text sections.
Doug Bice	A.S. Environmental Studies; B.S. Occupational Safety; M.S. Environmental/Occupational Health. 20 years experience in environmental and occupational health.	Senior Planner; data collection, analysis and participant in preparation of EA text and supporting sections.
Luke Eggering	B.S., Fish and Wildlife Management; M.S., Biology; 15 years experience in wetland management; wildlife, fisheries and endangered species management; 12 years experience preparation of NEPA/environmental documents.	Project Scientist, technical review, editing, and quality assurance of EA.
Virginia Flynn	B.S. Horticulture; M.S. Plant Ecology; 10 years experience in biological surveys, natural resource management, ecological restoration, and environmental impact assessment.	Senior Environmental Scientist; data collection, analysis and key participant in preparation of the environmental assessment text and supporting sections.
Lee Gorday	B.A., Geology; M.A. Geology; 18 years of experience in hydrogeologic systems and groundwater contamination.	Senior Hydrogeologist; data collection and preparation of groundwater, geology, and soils elements.

Name	Education and Experience	Primary Responsibilities
Richard Hall	B.S. Environmental Biology, M.S. Zoology, 24 years of experience in environmental assessment and impact studies, biological community investigations and ecosystem restoration.	Principal Environmental Scientist, technical review, editing, and quality assurance of PEA.
Randy Norris	B.S. Plant and Soil Science; Master of Urban Planning/Environmental Planning; 16 years experience in environmental impact assessment, environmental management and planning.	Senior Environmental Scientist; data collection, alternatives development, and natural resources impact analysis.
Rebecca Porath	B.S. Fisheries and Wildlife Management; M.S. Zoology; 9 years experience in plant and wildlife surveys and management, ecological restoration, and environmental impact assessment.	Environmental Scientist; data collection, analysis and key participant in preparation of EA text and supporting sections relating to biological resources.
Tom Shillito	B.S. Aerospace Engineering; M.C.E Environmental Engineering. 16 years experience in environmental science, regulatory compliance of DoD facilities.	Environmental Scientist, analysis and key participant in preparation of EA text and supporting sections.
Enid Staten	B.S. Biology; Master of Environmental Management; 4 years of experience in natural resource surveys, environmental impact assessment, environmental management and planning.	Environmental Scientist; data collection, analysis, and key participant in preparation of EA text and supporting sections.

SECTION 8 DISTRIBUTION LIST

Persons and Organizations Contacted as part of the initial coordination effort:

Mr. Charlie Scott
U.S. Fish and Wildlife Service
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0057

Mr. James B. Gulliford, Regional Administrator
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

Mr. U. Gale Hutton, Director
Environmental Services Division
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

David L. Pope, Chief Engineer
Department of Agriculture
Division of Water Resources
109 SW 9th Street, 2nd Floor
Topeka, Kansas 66612-1283

Kenneth W. Hoffman
Assistant State Conservationist
Natural Resources Conservation Service
United States Department of Agriculture
1125 Westport Drive
Manhattan, Kansas 66205-2860

Mr. Adrian Polansky,
Secretary
Kansas Department of Agriculture
109 SW 9th Avenue
Topeka, Kansas 66612

Mr. Ronald Hammerschmidt, PhD
Director
Kansas Department of Health and the Environment
Division of the Environment
1000 SW Jackson, Suite 400
Topeka, Kansas 66612-1367

Kansas State Historical Preservation Office
Cultural Resources Division
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, Kansas 66615-1099

Mr. Mike Hayden
Kansas Department of Wildlife and Parks
1020 South Kansas Avenue, Room 200,
Topeka, Kansas 66612-1233

Mr. Ray Aslin
State Forester
Kansas Forest Service
2610 Claflin Road
Manhattan, Kansas 66502-2798

Mr. William Harrison
Director and State Geologist
Kansas Geological Survey
1930 Constant Ave., Campus West
The University of Kansas
Lawrence, Kansas 66047-3726

Mr. Greg Foley,
Executive Director
Kansas Conservation Commission
109 SW 9th Street, Suite 500, Mills Bldg.,
Topeka, Kansas 66612

Dr. Edward A. Martinko
Director:
Kansas Biological Survey
2101 Constant Avenue, Higuchi Hall
The University of Kansas
Lawrence, KS 66047-3759

SECTION 9 PERSONS CONSULTED

All information solicited and collected in preparation of this document was done so with Army installation personnel. No information from outside sources was utilized in preparation of this document.

1 **APPENDIX A**
2 **PUBLIC INVOLVEMENT**

3 **A.1 INTRODUCTION**

4 As noted in Section 1.4, Fort Leavenworth's public participation program included two
5 major elements:

- 6 1.) Public Agency and Private Organization Coordination as part of the scoping
7 process; and
8 2.) Public Comment on the Draft Environmental Assessment.

9 As part of the initial scoping effort, letters were mailed to the following public agencies,
10 private organizations, and individuals.

- 11 3.) U.S. Fish and Wildlife Service;
12 4.) U.S. Environmental Protection Agency, Region VII;
13 5.) Kansas Department of Agriculture;
14 6.) Natural Resources Conservation Service;
15 7.) Kansas Department of Health and Environment;
16 8.) Kansas State Historical Preservation Office, Cultural Resources Division;
17 9.) Kansas Department of Wildlife and Parks;
18 10.) Kansas Forest Service;
19 11.) Kansas Geological Survey;
20 12.) Kansas Conservation Commission; and
21 13.) Kansas Biological Survey.

22 **A.2 AGENCY COORDINATION LETTERS**

23 A copy of the scoping letter that was sent out and copies of the response letters that
24 were received during the initial scoping effort are provided in the following pages of this
25 section.

April 12, 2006

«Title» «FirstName» «LastName»
«JobTitle»
«Company»
«Address1»
«Address2»
«City», «State» «PostalCode»

Re: Request for Information and Notification of the Preparation of an *Environmental Assessment for Base Realignment and Closure 2005 Activities at Fort Leavenworth, Kansas*
Parsons Project No. 745060

Dear «Title»«Last Name»:

Parsons Infrastructure and Technology, Inc. (Parsons) is currently under contract with the Mobile District, U.S. Army Corps of Engineers to assist in preparing an Environmental Assessment (EA) associated with Base Realignment and Closure (BRAC) actions. As identified by the BRAC legislation, a new Level II Joint Regional Correctional Facility (JRCF) would be established at Fort Leavenworth. Establishment of the expanded JRCF at Fort Leavenworth would allow for the closure of correctional facilities at Lackland Air Force Base, Fort Knox, and Fort Sill. In support of this effort, Fort Leavenworth has identified that several new facilities would need to be constructed, several facilities repaired, and that minor changes in current operations at both these as well as other facilities at Fort Leavenworth would be necessary to support the realigned missions.

The following table summarizes the various elements required to support the BRAC realignments along with the status of prior environmental reviews. As summarized on the table, a majority of the proposed projects have already been evaluated for potential environmental impacts in separate environmental reviews. Projects that have not been addressed in prior environmental reviews include the Company Operations Facilities (COFs), the tactical equipment and vehicle maintenance shops, the oil storage facility, the organization vehicle parking area, and the vehicle wash rack. This EA will provide an analysis of the potential direct and indirect impacts of these project elements; as well as review the potential cumulative impacts of all of the projects.

Fort Leavenworth Status of Prior Environmental Review on Potential BRAC Projects.		
Project Element	Prior Environmental Review	Environmental Review in this Document
Joint Regional Correction Facility Expansion	Yes	No ¹
Battalion Headquarters (3 total)	Yes	No ¹
Company Operations Facilities (10 total)	No	Yes
Tactical Equipment and Vehicle Maintenance Facilities (2 total) with associated organization and non-organization vehicle parking	No	Yes
Oil Storage Facility	No	Yes
Organizational Vehicle Fueling Facility	No	Yes
Vehicle Wash Facility (Rack) with an oil-water separator	No	Yes
Unaccompanied Enlisted Personnel Housing – Single Soldiers Barracks	Yes	No ¹
Dining Facility	Yes	No ¹
Addition to the Harold Youth Center (Building 1056)	Yes	No ¹
Addition to the Harney Gymnasium (Building 664)	Yes	No ¹
Military Working Dog Kennels (~10 dogs) Construction/Relocation	Yes	No ¹
An Internment/Resettlement Training Area	Yes	No ¹
<p>Note 1: All projects will be considered in the cumulative impacts analysis for this project, but the primary environmental review for this element was completed previously.</p> <p>Source: Parsons</p>		

We are informing you of this study effort and requesting:

- any information your agency may have on file that might be pertinent to our analysis,
- areas of interest that you feel should be considered in the EA process, and

- additional persons, organizations, or agencies that we should consider contacting.

A list of the other persons and organizations that are being contacted as part of this initial coordination effort is attached to this letter.

The purpose of this EA is to identify and evaluate the environmental impacts (including physical and biological, historical and archaeological, and socioeconomic) associated with potential activities at Fort Leavenworth. As part of the EA, we will identify and describe the proposed action, alternatives to these actions, and related environmental effects as required by the President's Council on Environmental Quality, the National Environmental Policy Act of 1969, and 32 Code of Federal Regulations, Part 651.

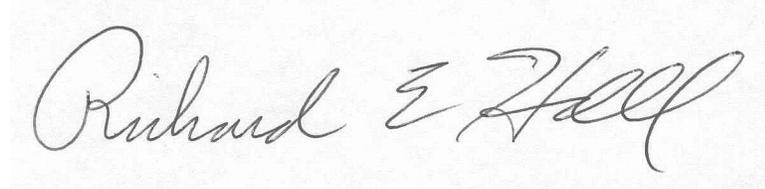
The EA will review the potential impacts of a No Action Alternative and several potential implementation alternatives. The alternatives identified to date include:

- **Alternative 1 - No Action Alternative.** Under the No Action Alternative, ongoing operations would continue at the level that they are currently conducted, and a new Level II JRCF would be established at Fort Leavenworth. This alternative defines conditions at Fort Leavenworth (as of March 2006) as the "environmental baseline" that can be used as a benchmark for comparing the beneficial and adverse impacts associated with the other alternatives. Included in the baseline are existing missions at Fort Leavenworth, including modifications to existing infrastructure and operations that have been previously identified and approved via separate environmental analysis.
- **Alternative 2 - New Construction of a Motor Pool and Company Operations Complex Within the Former U.S. Disciplinary Barracks (USDB) Vocational Farm Site (Preferred Alternative).** This alternative would consist of constructing the required COFs, maintenance and maintenance support facilities in a complex to accommodate the USDB on the former USDB vocational farm site. This alternative site has extensive cut and fill requirements, and would require relocating the military working dog facility to a ball field near buildings 1007, 1008, and 1010. This alternative would also require demolition of an old pesticide mixing pad, which has already been cleaned; closure of an agricultural sewage lagoon; and demolition of an old hog and cattle processing facility.
- **Alternative 3 – Renovate and Upgrade Existing Vehicle Wash Facilities and Special Services Automotive Craft Shop to Accommodate Motor Pool and Company Operations Area for the JRCF.** This alternative would consist of renovating and using the existing vehicle maintenance facilities and Special Services Automotive Craft Shop to accommodate the COF, maintenance and maintenance support requirements of the JRCF. The existing vehicle maintenance facilities and Special Services Automotive Craft Shop buildings are converted stables and warehouses in the historic area of the installation. This alternative would require relocating the existing vehicle wash facility closer to the refueling station, upgrading four existing historic buildings (109, 262, 263, and 264) to accommodate at least 28 high mobility multi-purpose wheeled vehicles (HMMWVs), construction of additional vehicle maintenance and parking areas, and renovation of the existing buildings to support the required COFs.

If you, or someone on your staff, have any questions concerning this request, please contact us for clarification or discussion. Your assistance and effort in this matter are greatly appreciated.

Very truly yours,

PARSONS

A handwritten signature in black ink that reads "Richard E. Hall". The signature is written in a cursive style and is positioned above the word "for,".

for,

Darrel Sisk, Jr.
Project Manager

Enclosure

Persons and Organizations Contacted as part of the initial coordination effort:

Mr. Charlie Scott
U.S. Fish and Wildlife Service
101 Park DeVillie Drive, Suite A
Columbia, Missouri 65203-0057

Mr. James B. Gulliford, Regional Administrator
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

Mr. U. Gale Hutton, Director
Environmental Services Division
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

David L. Pope, Chief Engineer
Kansas Department of Agriculture
Division of Water Resources
109 SW 9th Street, 2nd Floor
Topeka, Kansas 66612-1283

Kenneth W. Hoffman
Assistant State Conservationist
Natural Resources Conservation Service
United States Department of Agriculture
1125 Westport Drive
Manhattan, Kansas 66205-2860

Mr. Adrian Polansky,
Secretary
Kansas Department of Agriculture
109 SW 9th Avenue
Topeka, Kansas 66612

Mr. Ronald Hammerschmidt, PhD
Director
Kansas Department of Health and the Environment
Division of the Environment
1000 SW Jackson, Suite 400
Topeka, Kansas 66612-1367

Kansas State Historical Preservation Office
Cultural Resources Division
Kansas State Historical Society
6425 SW 6th Avenue
Topeka, Kansas 66615-1099

Mr. Mike Hayden
Kansas Department of Wildlife and Parks
1020 South Kansas Avenue, Room 200
Topeka, Kansas 66612-1233

Mr. Ray Aslin
State Forester
Kansas Forest Service
2610 Claflin Road
Manhattan, Kansas 66502-2798

Mr. William Harrison
Director and State Geologist
Kansas Geological Survey
1930 Constant Ave., Campus West
The University of Kansas
Lawrence, Kansas 66047-3726

Mr. Greg Foley,
Executive Director
Kansas Conservation Commission
109 SW 9th Street, Suite 500, Mills Bldg.,
Topeka, Kansas 66612

Dr. Edward A. Martinko
Director:
Kansas Biological Survey
2101 Constant Avenue, Higuchi Hall
The University of Kansas
Lawrence, KS 66047-3759

A.3 AGENCY RESPONSE LETTERS

Comments received from agencies and other interested parties include:

- U.S. Fish and Wildlife Service;
- U.S. Environmental Protection Agency, Region VII;
- Kansas Department of Agriculture;
- Natural Resources Conservation Service;
- Kansas Department of Health and Environment;
- Kansas State Historical Preservation Office, Cultural Resources Division; and
- Kansas Conservation Commission.

Copies of the letters that were received during the initial scoping effort are provided in this section.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Office
2609 Anderson Avenue
Manhattan, Kansas 66502-6172



May 18, 2006



Darrel Sisk, Jr.
Parsons
400 Woods Mill Road South, Suite 330
St. Louis, MO 63017-3427

RE: EA for BRAC 2005 Activities at Fort Leavenworth FWS Tracking # 2006-P-0272

Dear Mr. Sisk:

Thank you for your recent letter regarding preparation of an Environmental Assessment (EA) for Base Realignment and Closure 2005 Activities at Fort Leavenworth, Kansas, Parsons Project No. 745060. We understand there are three potential alternatives under consideration:

- No action
- New construction of a Motor Pool and Company Operations Complex within the Former U.S. Disciplinary Barracks (USDB) Vocational Farm site (Preferred Alternative)
- Renovate and Upgrade Existing Vehicle Wash Facilities and Special Services Automotive Craft Shop to Accommodate Motor Pool and Company Operations Area for the JRCF

Based on our review of the proposed action as described, including the fact that this project will be reutilizing previously developed areas, we do not anticipate impacts to fish and wildlife resources, including threatened and endangered species.

Under the Migratory Bird Treaty Act (MBTA), construction activities in prairies, wetlands, stream and woodland habitats that would otherwise result in the taking of migratory birds, eggs, young, and/or active nests should be avoided. Although the provisions of MBTA are applicable year-round, most migratory bird nesting activity in Kansas occurs during the period of April 1 to July 15, although some migratory birds are known to nest outside this period. If the proposed construction project may result in the take of nesting migratory birds, the USFWS recommends a field survey during the nesting season of the affected habitats and structures to determine the presence of active nests. Our office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests that can not be avoided temporally or spatially by the planned construction activities.

If a permit from the Corps of Engineers is required, the USFWS will be given the opportunity to review the public notice on the proposed action and provide additional comments at that time. Section 404 guidelines require the sequence of avoidance of impacts, minimization of impacts and compensation for unavoidable impacts. When we review the public notice we will request information on alternatives considered, how the project avoided and minimized impacts to aquatic ecosystems, and the compensatory mitigation proposal, if one is required by the Corps.

Thank you for this opportunity to comment on the proposal.

Sincerely,



Michael J. LeValley
Field Supervisor

cc: KDWP, Pratt, KS (Environmental Services)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

05 MAY 2006

Darrel Sisk
Parsons
400 Woods Mill Road South, Suite 330
St. Louis, Missouri 63017-3427

Dear Mr. Sisk:

RE: Environmental Assessment for BRAC 2005 Activities at Fort Leavenworth,
Kansas (Parsons Project 745060)

This letter responds to your April 12, 2006, correspondence regarding an upcoming Environmental Assessment for proposed work at Fort Leavenworth. The Environmental Protection Agency (EPA) appreciates being notified of federally sponsored projects that are being evaluated for possible environmental impact through your National Environmental Policy Act (NEPA) review. Compliance with the review requirements of the NEPA is a responsibility of the federal agency undertaking or sponsoring the activity.

The EPA has a great deal of catalogued information that may be of use in studying the environmental impacts of the project. On the World Wide Web,

<http://www.epa.gov/surf3/locate/index.html>

is a web site of environmental information organized by watershed.

http://www.epa.gov/enviro/index_java.html

is a web site containing extensive information collected by the EPA from most departments within the Agency, including hazardous waste sites, superfund sites, toxic release and water discharge permits, and others. We encourage you to access the above sites during the preparation of the Environmental Assessment.

In communicating with the EPA on this project, we noted that you sent information to several offices within EPA Region 7. In the future, when corresponding about NEPA-related projects (involving Environmental Assessments or Environmental Impact Statements), you may direct all correspondence to Joe Cothorn, either by mail, or via email at cothorn.joe@epa.gov in lieu of sending written correspondence.



If you have any questions or require further assistance, please contact me at
(913) 551-7656.

Sincerely,



Stephen Smith
NEPA Reviewer
Environmental Services Division



DEPARTMENT OF AGRICULTURE
ADRIAN J. POLANSKY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

May 22, 2006

PARSONS
MR RICHARD SISK JR
400 WOODS MILL RD S STE 330
ST LOUIS MO 63017-3427

RE: DWR A-95 2006.153

Dear Mr. Sisk:

This will acknowledge receipt of your letter and attachments dated April 12, 2006 regarding Parsons Project No. 745060 the Base Realignment and Closure 2005 Activities at Fort Leavenworth, Kansas. Because the information provided lacks sufficient detail to allow this agency to make a clear determination concerning permit requirements, the following is brought to your attention:

If the proposed project includes the construction of any facility, levee, floodplain fill, or other structure which controls, regulates or changes the flood waters of a stream or watercourse in this state, it will be subject to the provisions of K.S.A. 24-126 or 24-105, both of which require plans for the project to be approved by the Chief Engineer of the Division of Water Resources prior to construction.

The project may require approval from the local community if it is located in an identified Special Flood Hazard Area (floodplain) and the community participates in the National Flood Insurance Program. If the elevation is accomplished by the placement of fill material in the floodplain, approval of plans for the placement of the fill material may be required from this office. Approval from our office also involves environmental review by other state agencies.

If you have questions regarding water structures or believe that a water structures permit has already been applied for or obtained, please contact Jean Darrah at (785) 296-2855.

Sincerely,

Bob Lytle
Environmental Scientist
Technical Services Section

RFL:ssc
pc: Topeka Field Office

Division of Water Resources David L. Pope, Chief Engineer
109 SW 9th ST., 2nd Floor Topeka, KS 66612-1283
Voice (785) 296-3717 Fax (785) 296-1176 <http://www.accesskansas.org/kda>



United States Department of Agriculture
Natural Resources Conservation Service
1125 Westport Drive
Manhattan, Kansas 66502-2860

"A Partner in Conservation Since 1935"

Phone: 785-776-5182
FAX: 785-539-7983
www.ks.nrcs.usda.gov

April 17, 2006

Darrel Sisk, Jr., Project Manager
Parsons
400 Woods Mill Road South
Suite 330
St. Louis, Missouri 63017-7330

Re: Environmental Assessment for Base Realignment and Closure 2005 Activities at
Fort Leavenworth, Kansas. Parsons Project No. 745060

Dear Mr. Sisk:

Thank you for the opportunity to review the proposed alternatives for the planned for the
base realignment and closure activities at Fort Leavenworth, Kansas.

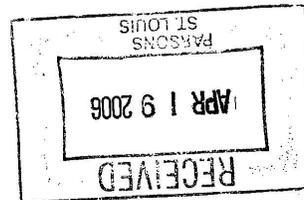
Since all of the alternatives mentioned in the information packet will take place on the
existing grounds of Fort Leavenworth, I see no effects to prime farmland or soils of
state-wide importance. Furthermore, I see no other negative environmental effects for
which the Natural Resources Conservation Service is responsible for evaluating.

If I can be of further assistance, please let me know.

Sincerely,

Alan R. Boerger
Resource Conservationist

Cc: Lynn Thurlow, Soil Conservationist, NRCS, Salina, Kansas.
Gary Rader, District Conservationist, NRCS, Leavenworth, Kansas.
Ken Hoffman, ASTC(FO), NRCS, Manhattan, Kansas.



The Natural Resources Conservation Service provides leadership in a partnership effort to help people
conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

MEMORANDUM

DATE: April 18, 2006

TO: Donna Fisher, Receptionist - DOE Director's Office

FROM: Donald Carlson - BOW

SUBJECT: Agency Review Comments
Ft. Leavenworth (Parsons Project No. 745060)

I have no objection to the proposed project but offer the following comments for review and consideration:

- Any construction or site grading activity which disturbs 1 acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (the party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction. The Kansas construction stormwater general permit, a Notice of Intent (application form), a frequently asked questions file and supplemental materials are on-line on the KDHE Stormwater Program webpage at www.kdhe.state.ks.us/stormwater. Answers to questions regarding or additional information concerning construction stormwater permitting requirements can be obtained by calling (785) 296-5549.
- If the project will generate wastewater (other than domestic) which will be directed to a municipal sanitary sewer for treatment and disposal, you will need to contact the municipality and receive authorization regarding the introduction of this wastewater.
- Process or domestic wastewater generated by the facility which is not directed to a City sanitary sewer may require the issuance of a State Water Pollution Control Permit. To obtain information regarding the need for a permit or to obtain the appropriate application forms, please contact Donald Carlson at (785) 296-5547 or Joe Mester at (785) 296-6804.

DIVISION OF ENVIRONMENT
Bureau of Water - Industrial Programs Section
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 420, TOPEKA, KS 66612-1367
Voice 785-368-8339 Fax 785-296-0086 <http://www.kdheks.gov>

- In the event a septic tank and lateral field system is being considered for any of the new structures, we recommend that only domestic sanitary wastes (toilets, sinks, etc.) be directed to the septic tank system. Floor drains or other connections that may introduce non-domestic wastes may subject the applicant to Underground Injection Control (UIC) Class V injection well requirements. EPA is currently reworking these regulations and these changes may have a significant impact on the facility operation and applicant. If you should have any questions regarding directing non-domestic wastes to a septic system, please contact Mike Cochran at (785) 296-5560.



K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND ENVIRONMENT

MEMORANDUM

To: Donna Fisher

CC: Leo Henning → File: Fort Leavenworth C4-052-70004

FROM: Jim Anstaett

DATE: April 28, 2006

RE: Environmental Audit Requested by Darrel Sisk, Parsons, for sites located in Fort Leavenworth, Kansas.

The Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation (BER), Assessment and Restoration Section, Superfund and Federal Facilities Unit has several known Formerly Used Defense Site (FUDS) in the area requested. The site is currently under investigation and contamination has not been characterized as of yet. Ruby Cavaleri is the current project manager for Fort Leavenworth. Please feel free to contact her at (785) 291-3245 rcavaleri@kdhe.state.ks.us. Another person with knowledge of the site is Richard Wilms, an employee for ERP at Fort Leavenworth.

Staffs from SCKEDD are welcome to come view the KDHE-BER files in accordance with the Kansas Open Records act. If you have any questions, contact me at (785) 291-3249 JAnstaett@kdhe.state.ks.us or Ruby Cavaleri.

DIVISION OF ENVIRONMENT
Bureau of Environmental Remediation
Curtis State Office Building, 1000 SW Jackson St., Suite 410, Topeka, KS 66612-1367
Voice 785-291-3249 Fax 785-296-4823 <http://www.kdhe.state.ks.us>
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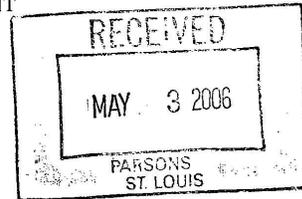
K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

April 28, 2006



Darrel Sisk, Jr., Project Manager
Parsons
400 Woods Mill Road
Suite 330
St. Louis, MO 63017-3427

Dear Mr. Sisk,

This letter is in response to your letter received April 14, 2006 requesting comments regarding the proposed renovation activities for several facilities, in Fort Leavenworth, Kansas. This letter concerns asbestos-containing materials which may be present in older buildings.

Many of these older structures contain building materials which may contain asbestos. Common building materials which may be asbestos-containing materials (ACM) that are found in older public and commercial buildings include sprayed-on acoustical ceiling plasters, floor coverings such as vinyl tile and linoleum, siding, roof shingles and associated felts, as well as thermal system insulation on plumbing, boilers and steam piping, and duct work of heating and air-conditioning equipment.

As asbestos was used in more than 3600 different building materials, it is important to identify these materials prior to the start of the renovation or demolition activities. To determine if asbestos-containing materials are present in the building, an inspection for asbestos-containing materials by a trained and accredited asbestos inspector is required by federal EPA asbestos control regulations. Enclosed with this letter is a listing of firms which provide asbestos-related consultation services, including accredited inspections, for your consideration.

Asbestos-containing materials (ACM) are divided into two main categories. Non friable (hard) asbestos-containing materials are not easily damaged and do not readily release airborne asbestos fibers. Non friable ACM may include square floor tile, asphaltic roofing, and asbestos/cement (A/C) siding and shingles. These materials can become friable, and release airborne asbestos fibers, if subjected to sanding, grinding, sawing, crushing, or pulverizing to a powder.

Friable (soft) asbestos-containing materials are easily damaged and, when disturbed, can readily release airborne asbestos fibers. Friable ACM may include sprayed-on acoustical ceiling plasters, thermal insulation on heating and cooling systems, and resilient (no-wax) linoleum. If friable ACM is to be removed or disturbed by the renovation or demolition activities, they must be removed first by specially trained workers

DIVISION OF ENVIRONMENT
Bureau of Air & Radiation
Radiation and Asbestos Control Section
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 310, TOPEKA, KS 66612-1366
Voice 785-296-1560 Fax 785-296-0984 <http://www.kdhe.ks.gov/asbestos>

In Kansas, the removal of friable (soft) ACM must be performed by a Kansas licensed asbestos abatement contractor. These licensed contractors use certified asbestos workers, specialized equipment, and specific work procedures to remove and properly dispose of friable ACM. I have enclosed a current listing of Kansas licensed asbestos abatement contractors for your reference.

Written notification of the intent to demolish public or commercial building also is required under the EPA asbestos NESHAP regulations (40 CFR Part 61.145). A Demolition Notification Form must be completed for each building or affected structure, and the completed form sent to KDHE, delivered or postmarked **at least 10 working days prior to the start of demolition activities**. Enclosed is the Asbestos Demolition Notification Form (ET-ASB10) for reporting intent to perform demolition for your use.

If you have additional questions please feel free to contact me at (785) 296-1689.

Sincerely,



Scott C. Bangert
Environmental Scientist
Radiation and Asbestos Control Section
Bureau of Air and Radiation.

SCB:sp

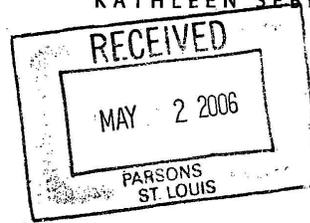
DIVISION OF ENVIRONMENT
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KANSAS

KSR&C No. 06-04-155

Kansas State Historical Society
Jennie Chinn, *Executive Director*

KATHLEEN SEBELIUS, GOVERNOR



April 27, 2006

Darrel Sisk, Jr.
Project Manager
Parsons Infrastructure and Technology, Inc
400 Woods Mill Road South, Suite 300
St. Louis, Missouri 63017-3427

RE: Environmental Assessment for Base Realignment and Closure Activities
Fort Leavenworth, Kansas
Parsons Project No. 745060

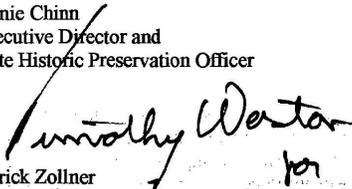
Dear Mr. Sisk:

The Kansas State Historic Preservation Office has reviewed your description of activities associated with Base Realignment and Closure (BRAC) actions at Fort Leavenworth, Kansas. Our office has concerns regarding Alternatives 2 and 3. From your description, it appears that Alternative 2 will involve construction of new facilities across the road to the west of the disciplinary barracks complex in the northern portion of the fort. According to our records, this area has never been subjected to an archeological survey. It is situated on the same landform as the DB site (14LV1071), a large stratified prehistoric archeological site excavated prior to construction of the disciplinary barracks. Any development in this area will require archeological survey prior to construction. At this time, we request that you forward a map to our office illustrating the boundaries of the proposed improvements. Alternative 3 will involve upgrading four historic buildings (109, 262, 263, and 264) and renovation of other existing structures. We request that you provide our office with descriptions of the proposed upgrading and renovations so that we may evaluate any impacts to historic structures.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional information regarding these comments, please contact Tim Weston 785-272-8681 (ext. 214) or Bob Bettis 785-272-8681 (ext. 226). Please refer to the Kansas Review & Compliance number (KSR&C#) above on all future correspondence relating to this project.

Sincerely,

Jennie Chinn
Executive Director and
State Historic Preservation Officer



Patrick Zollner
Deputy State Historic Preservation Officer

CC: Bob Beardsley, Fort Leavenworth

6425 SW Sixth Avenue • Topeka, KS 66615-1099
Phone 785-272-8681 Ext. 205 • Fax 785-272-8682 • Email jchinn@kshs.org • TTY 785-272-8683
www.kshs.org



Greg A. Foley, Executive Director

KANSAS
State Conservation Commission

Kathleen Sebelius, Governor

AGENCY REVIEW TRANSMITTAL FORM

Date: April 25, 2006

PROJECT TITLE: Environmental Assessment for Base Realignment and Closure
at Fort Leavenworth
Parsons Project No. 745060

CONTACT: Darrel Sisk Jr.

RETURN TO: DARREL SISK
PARSONS
400 WOODS MILL ROAD SOUTH SUITE 330
ST. LOUIS MO 63017-3427

AGENCY REVIEW COMMENTS

COMMENTS: NO COMMENT

RECOMMENDED ACTION COMMENTS

- ___ Clearance of the project should be granted.
- ___ Clearance of the project should not be granted.
- ___ Clearance of the project should be delayed until the issues or questions have been clarified.
- ___ Request a State Process Recommendation in concurrence with above comments.
- ___ Clearance of the project should not be delayed, but the Applicant should (in the final application) address or clarify the questions or concerns.
- ___ Request the opportunity to review the final application prior to submission to the federal funding agency.

Greg A. Foley, Executive Director
State Conservation Commission

Mills Building, 109 SW 9th Street, Suite 500, Topeka, KS 66612-1215
785-296-3600 Fax 785-296-6172 www.accesskansas.org/kscc

APPENDIX B SPECIES LIST

B.1 INTRODUCTION

The following table lists threatened and endangered species that may occur in Leavenworth County but have not been observed at Fort Leavenworth.

Common Name	Species Name	Status	Habitat Notes	Remarks
American Burying Beetle	<i>Necrophorus americanus</i>	Federal and State Endangered	Occurs in suitable grasslands and upland woodlands	Endangered nationally
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Federal: Threatened State: Endangered	Known as a regular winter resident along the Missouri River. Prefers mature riparian woodland along the river.	Critical habitat has been designated. Endangered nationally.
Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>	Federal: None State: Threatened	Known to occur in the Missouri River mainstream. Spawns over clean gravel in small tributary streams. Spawning has not been documented in Kansas.	Critical habitat has been designated.
Eastern Spotted Skunk	<i>Spilogale putorius interrupta</i>	Federal: None State: Threatened	Known to occur historically and may still occur in suitable habitat. Prefers brushy grasslands and woodland edges. May also use abandoned or little used farm buildings.	
Eskimo Curlew	<i>Numenius borealis</i>	Federal and State: Endangered	Formerly a regular spring transient using bare fields and heavily grazed or burned grasslands. Not recorded in Kansas since 1902. A few birds may still migrate through the state.	Endangered nationally.
Flathead Chub	<i>Platygobio gracilis</i>	Federal: None State: Threatened	May occur in the Kansas River and Missouri River main stems. Prefers turbid streams with unstable sand bottoms.	Critical habitat has been designated.
Least Tern	<i>Sterna antillarum</i>	Federal and State: Endangered	Known to occur historically and may still occur as seasonal transient or summer visitor at waters where forage fish are abundant.	Endangered nationally.
Northern Redbelly Snake	<i>Storeria occipitomaculata occipitomaculata</i>	Federal: None State: Threatened	May occur in suitable habitat. Prefers moist mature upland woodland having dense leaf litter, rocks and other debris for cover.	

Common Name	Species Name	Status	Habitat Notes	Remarks
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Federal and State: Endangered	Known to occur in the Missouri River main stem and to occur historically in the Kansas River during flood flows. Prefers swift turbid rivers with firm sand substrate.	Critical habitat has been designated. Endangered nationally.
Peregrine Falcon	<i>Falco peregrinus</i>	Federal and State: Endangered	May occur as an uncommon seasonal transient or winter visitor at areas where waterfowl concentrate.	Endangered nationally.
Piping Plover	<i>Charadrius melodus</i>	Federal and State: Threatened	May occur as a rare seasonal transient on sparsely vegetated shores of streams, marshes or impoundments.	Threatened nationally.
Sicklefin Chub	<i>Macrhybopsis meeki</i>	Federal: None State: Endangered	Known to occur in the Missouri River main stem. Prefers areas of strong current over sand or gravel substrate.	Critical habitat has been designated.
Silverband Shiner	<i>Notropis shumardi</i>	Federal: None State: Threatened	May occur in the Missouri River main stem. Prefers moderately deep areas of flowing water over sand or gravel substrate.	Critical habitat has been designated.
Snowy Plover	<i>Charadrius alexandrinus</i>	Federal: None State: Threatened	May occur as an occasional seasonal transient or summer visitor at sparsely vegetated wetlands and impoundment shorelines.	
Sturgeon Chub	<i>Macrhybopsis gelida</i>	Federal: None State: Threatened	Restricted to larger sandy rivers swept by currents especially at heads of islands and sand bars. Has been documented in the Missouri River.	Critical habitat has been designated.
Smooth Earth Snake	<i>Virginia valeriae elegans</i>	Federal: None State: Threatened	Known to occur historically and may still occur in suitable habitat. Prefers rocky hillsides in or near moist woodlands where rocks, logs, or leaf litter provide cover.	
Western Silvery Minnow	<i>Hybognathus argyritis</i>	Federal: None State: Threatened	Prefers large shallow sandy rivers. It utilizes runs and backwater pools. Currently known from the Missouri River.	Critical habitat has been designated.
White-faced Ibis	<i>Plegadis chihi</i>	Federal: None State: Threatened	Known to occur as an occasional seasonal transient or summer visitor at wetlands and impoundments.	
<i>Source: Fort Leavenworth, Integrated Natural Resources Management Plan, 1999</i>				

APPENDIX C ECONOMIC IMPACT FORECASTING SYSTEM MODEL OUTPUT

EIFS REPORT

PROJECT NAME

Fort Leavenworth BRAC EA, Construction Impacts

STUDY AREA

20103 Leavenworth, KS

FORECAST INPUT

Change In Local Expenditures	\$6,900,000
Change In Civilian Employment	60
Average Income of Affected Civilian	\$35,000
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	2.05
Income Multiplier	2.05
Sales Volume - Direct	\$5,222,546
Sales Volume - Induced	\$5,483,674
Sales Volume - Total	\$10,706,220 0.79%
Income - Direct	\$2,865,036
Income - Induced)	\$1,187,050
Income - Total(place of work)	\$4,052,087 0.3%
Employment - Direct	88
Employment - Induced	29
Employment - Total	117 0.37%
Local Population	0
Local Off-base Population	0 0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	13.33 %	8.96 %	4.84 %	2.4 %
Negative RTV	-6.05 %	-7.08 %	-5.11 %	-2.3 %

EIFS REPORT

PROJECT NAME

Fort Leavenworth BRAC EA, Operations Impacts

STUDY AREA

20103 Leavenworth, KS

FORECAST INPUT

Change In Local Expenditures	\$2,000,000
Change In Civilian Employment	94
Average Income of Affected Civilian	\$45,000
Percent Expected to Relocate	0
Change In Military Employment	271
Average Income of Affected Military	\$26,000
Percent of Military Living On-post	30

FORECAST OUTPUT

Employment Multiplier	2.05
Income Multiplier	2.05
Sales Volume - Direct	\$7,420,565
Sales Volume - Induced	\$7,791,594
Sales Volume - Total	\$15,212,160 1.12%
Income - Direct	\$11,497,750
Income - Induced)	\$1,686,646
Income - Total(place of work)	\$13,184,400 0.97%
Employment - Direct	404
Employment - Induced	41
Employment - Total	446 1.41%
Local Population	675
Local Off-base Population	472 0.99%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	13.33 %	8.96 %	4.84 %	2.4 %
Negative RTV	-6.05 %	-7.08 %	-5.11 %	-2.3 %

EIFS REPORT

PROJECT NAME

Fort Leavenworth BRAC EA, Cumulative Impacts

STUDY AREA

20103 Leavenworth, KS

FORECAST INPUT

Change In Local Expenditures	\$37,360,000
Change In Civilian Employment	300
Average Income of Affected Civilian	\$35,000
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	2.05
Income Multiplier	2.05
Sales Volume - Direct	\$27,577,610
Sales Volume - Induced	\$28,956,490
Sales Volume - Total	\$56,534,100 4.17%
Income - Direct	\$14,642,280
Income - Induced)	\$6,268,209
Income - Total(place of work)	\$20,910,490 1.55%
Employment - Direct	447
Employment - Induced	154
Employment - Total	600 1.9%
Local Population	0
Local Off-base Population	0 0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	13.33 %	8.96 %	4.84 %	2.4 %
Negative RTV	-6.05 %	-7.08 %	-5.11 %	-2.3 %