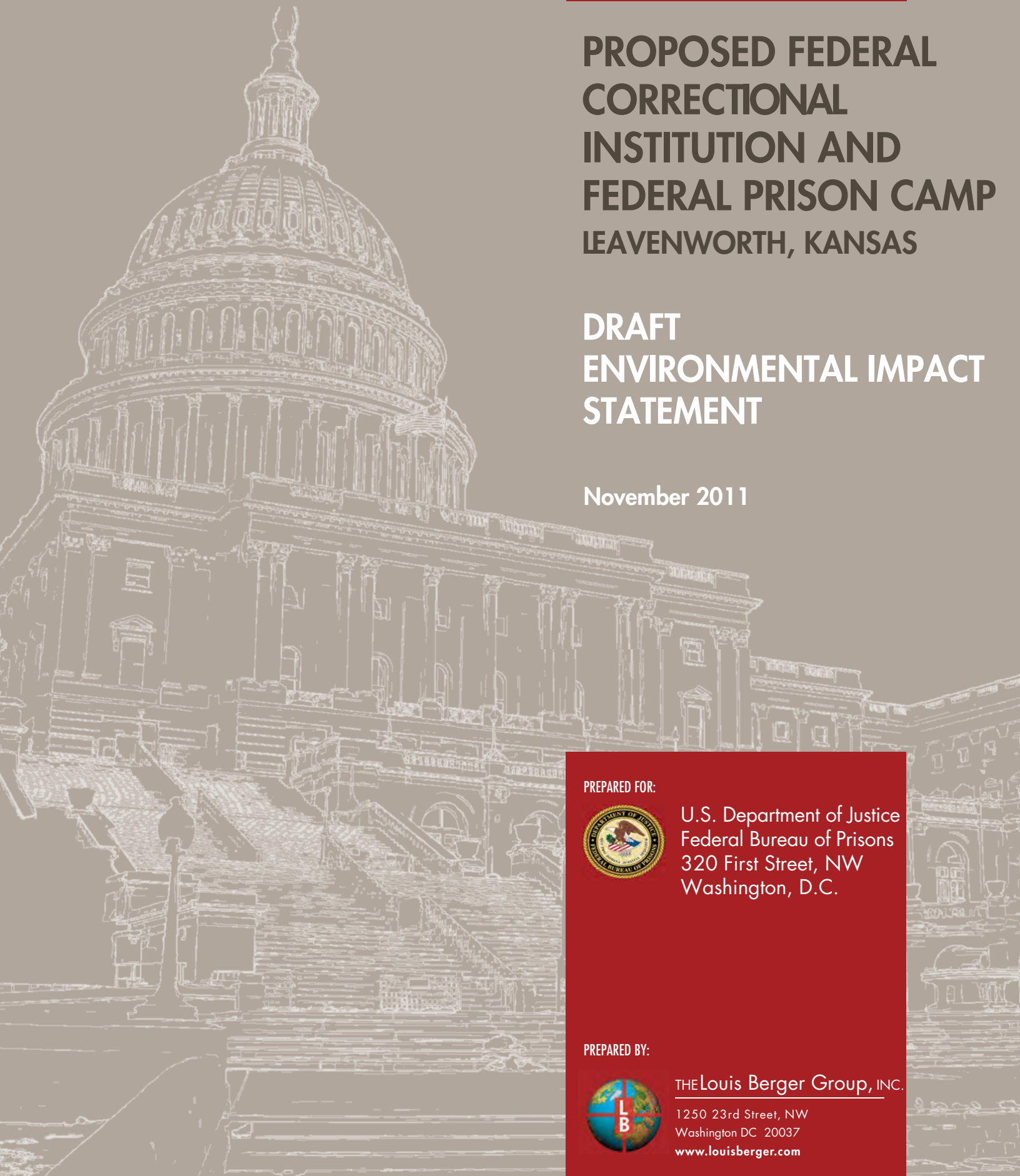

PROPOSED FEDERAL CORRECTIONAL INSTITUTION AND FEDERAL PRISON CAMP

LEAVENWORTH, KANSAS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

November 2011

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Federal Bureau of Prisons
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ABSTRACT

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DRAFT ENVIRONMENTAL IMPACT STATEMENT
PROPOSED FEDERAL CORRECTIONAL INSTITUTION AND FEDERAL PRISON CAMP
LEAVENWORTH, KANSAS

PROJECT SPONSOR: U.S. Department of Justice - Federal Bureau of Prisons

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PROPOSED ACTION: The U.S. Department of Justice, Federal Bureau of Prisons (BOP) is facing bedspace shortages throughout the federal prison system with correctional facilities crowded at all security levels. In response, the BOP has committed significant resources to identifying, evaluating, acquiring and developing sites with federal correctional facilities which, in recent years, have resulted in construction of new correctional facilities in California, Arizona, New Hampshire, Mississippi and West Virginia among other locations. Even with the development of these new facilities, projections show the federal inmate population continuing to grow, increasing the demand for bedspace. This poses a special challenge for the BOP within the north-central United States where the need for bedspace is especially acute. To address the growing federal inmate population, and particularly the need for additional bedspace capacity within the north-central United States, the BOP has undertaken various investigations in an effort to identify and evaluate prospective sites capable of accommodating new federal correctional facilities.

There are no federal correctional facilities in North Dakota, Nebraska, and Iowa and only one facility operating in South Dakota, Michigan, Wisconsin, Missouri, and Kansas. As a result, the BOP houses many inmates who originate from the north-central United States in facilities throughout the North Central Region and beyond. In planning the development of new federal correctional facilities in the United States, consideration has been given to use of BOP-owned lands and facilities at other federal correctional facilities located with the BOP's North Central Region with most facilities eliminated from consideration due to limitations on available land, infrastructure and/or other resources needed to accommodate such development. However, sufficient land and infrastructure exists at the U.S. Penitentiary (USP) in Leavenworth, Kansas and, therefore, the BOP has focused its attention at evaluating the development potential and resulting environmental impacts of constructing and operating a new Federal Correctional Institution (FCI) and Federal Prison Camp (FPC) within BOP property comprising USP Leavenworth. Provision of additional bedspace in Leavenworth, Kansas would allow the BOP to house inmates originating from the north-central United States nearer to their family and friends which aids in the rehabilitative process. It is the BOP's policy that, to the extent possible, it will house inmates within a 500-mile radius of their homes. Locating the proposed FCI and FCP at USP Leavenworth would advance implementation of that policy for inmates originating from states comprising the North Central Region.

The proposed project consists of constructing and operating a new FCI to house approximately 1,500 medium-security inmates and a FPC to house approximately 300 minimum-security inmates. Together

both facilities would employ a complement of approximately 350 full-time staff upon operation. Development of the FCI and FPC is proposed as a means of better managing the present crowding within the federal prison system and meeting anticipated growth in the federal inmate population. Alternative actions have been evaluated, including the No Action Alternative, as stipulated by the National Environmental Policy Act.

PROPOSED PROJECT LOCATION: The 754-acre USP Leavenworth property is bordered by Metropolitan Avenue, immediately north of the City of Leavenworth and south and west of the Fort Leavenworth U.S. Army Base. The BOP property is generally bordered by Corral Creek to the north, Grant Avenue to the east, Metropolitan Avenue to the south, and the newly realigned Santa Fe Trail to the west. Two alternative locations within the USP Leavenworth property, known as the East Site and West Site and totaling approximately 371 acres, were investigated as part of the Draft Environmental Impact Statement.

FINDINGS: Development of the FCI and FPC is proposed as a means of alleviating crowding at other federal correctional facilities and to help meet the anticipated growth in the federal inmate population, especially within the North Central Region. Each of the alternative sites has been evaluated against the BOP's siting criteria. Development of the FCI and FPC within the East Site and West Site respectively best meets the project's goals and objectives and is considered by the BOP to be the environmentally-preferred alternative.

Construction and operation of the proposed project would result in impacts to the selected FCI and FPC building sites and surrounding community. Impacts to topographic and geologic conditions, soils, hydrology, land use, utility services, traffic and transportation movements, aesthetics, air quality and noise are anticipated, with none likely to constitute significant adverse impacts. Any significant adverse impacts would be mitigated as appropriate.

Beneficial impacts would be derived from implementation of the proposed action, including contributions toward fulfilling the BOP's mission to protect society along with achieving the goals of the U.S. Department of Justice and the mandates of the U.S. Congress. Implementation of the proposed project should result in no significant adverse impacts as defined by the National Environmental Policy Act while resulting in such positive impacts as creation of additional correctional facilities to house a portion of the growing federal inmate population; stimulation of the local and regional economy surrounding the City of Leavenworth; and creation of employment opportunities during both the construction and operation phases of the project. Cumulative, secondary and construction-related impacts and any other potentially adverse impacts would be controlled, mitigated or avoided to the maximum extent possible.

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LIST OF APPENDICES*

*Appendices are provided on the CD-ROM included with this report.

LIST OF ACRONYMS AND ABBREVIATIONS

AADT	Average Annual Daily Traffic
ACBMs	Asbestos-Containing Building Materials
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
AST	Aboveground Storage Tank
ASTM	American Society of Testing Materials
bgs	below ground surface
BOP	Federal Bureau of Prisons
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	Decibels
ECPA	Energy Conservation and Production Act
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FCI	Federal Correctional Institution
FEMA	Federal Emergency Management Agency
FPC	Federal Prison Camp
gpd	Gallons per day
GPR	Ground-Penetrating Radar
KDHE	Kansas Department of Health and Environment
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
mgd	Million gallons per day
msl	Mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PCBs	Polychlorinated Biphenyls
pCi/L	Picocuries per liter
RCRA	Resource Conservation and Recovery Act
REC	Recognized environmental concerns
ROD	Record of Decision
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SVOV	Semi-Volatile Organic Compound
TPH	Total Petroleum Hydrocarbons
tpy	Tons per year
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USP	United States Penitentiary
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

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A. INTRODUCTION

This Draft Environmental Impact Statement (EIS) provides an environmental analysis of a proposed action by the U.S. Department of Justice, Federal Bureau of Prisons (BOP), to further develop the property comprising the United States Penitentiary (USP) Leavenworth, located north of the City of Leavenworth, Kansas by constructing and operating a new Federal Correctional Institution (FCI) and Federal Prison Camp (FPC). The FCI would be designed to house approximately 1,500 medium-security inmates and the FPC would be designed to house approximately 300 minimum-security inmates for a total population of approximately 1,800 inmates. The Draft EIS, the assessments it presents, and the procedures by which the environmental investigations are conducted and incorporated in decision-making are parts of a process established by the National Environmental Policy Act (NEPA) to ensure that the environmental consequences of federal projects are adequately taken into account and to ensure that public officials make decisions based on a full understanding of the environmental impacts of proposed actions and take all appropriate steps to *"protect, restore and enhance the environment."*

The BOP is facing bedspace shortages throughout the federal prison system with correctional facilities crowded at all security levels. In response, the BOP has committed significant resources to identifying, evaluating, acquiring and developing sites for federal correctional facilities throughout the nation. However, projections show the federal inmate population continuing to grow, increasing the demand for additional bedspace. This poses a special challenge for the BOP within the north-central United States where the need for bedspace is especially acute. To address the growing federal inmate population, and particularly the need for additional bedspace capacity within the north-central United States, the BOP has undertaken various investigations in an effort to identify and evaluate prospective sites capable of accommodating new federal correctional facilities.

In planning the development of new federal correctional facilities in the United States, consideration has been given to use of lands and facilities at other federal correctional facilities located with the BOP's North Central Region with most facilities eliminated from consideration due to limitations on available land, infrastructure and/or other resources needed to accommodate such development. However, sufficient land and infrastructure exists at USP Leavenworth and, therefore, the BOP has focused its attention at evaluating the development potential and resulting environmental impacts of constructing and operating a new FCI and FPC within BOP property comprising USP Leavenworth. Provision of additional bedspace in Leavenworth, Kansas would allow the BOP to house inmates originating from the north-central United States nearer to their family and friends which aids in the rehabilitative process. It is the BOP's policy that, to the extent possible, it will house inmates within a 500-mile radius of their homes. Locating the proposed FCI and FCP at USP Leavenworth would advance implementation of that policy for inmates originating from states comprising the North Central Region.

B. ALTERNATIVES CONSIDERED

The analysis conducted under NEPA guidelines address the following alternatives:

- **No Action Alternative.** A decision not to proceed with the proposed action to develop a new FCI and FPC.

- **Alternative Locations.** Locations other than Leavenworth, Kansas for implementation of the proposed action and warranting only a brief explanation of the reasons for elimination.

- **Action Alternatives.** Alternative building locations within the grounds of USP Leavenworth which best meet BOP requirements for development while minimizing potential adverse environmental impacts.

- **Preferred Alternative.** The alternative preferred by the BOP for implementation of the proposed action.

No reasonable alternatives outside the jurisdiction of the BOP (the lead agency) have been identified or warrant inclusion in the report. Development of the proposed project at USP Leavenworth under the East/West Composite development plan is considered by the BOP to be the preferred alternative.

C. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION

Two alternative sites located east and west of USP Leavenworth and within the BOP's property are under consideration for development. The first alternative, known as the East Site, consists of approximately 227 acres of primarily undeveloped land situated east of the USP and north of Metropolitan Avenue, west of Grant Avenue, and south of Corral Creek. The second alternative, described as the West Site, comprises approximately 144 acres and is located west of the USP. The West Site includes the minimum-security prison camp and is generally bounded by Metropolitan Avenue on the south, Santa Fe Trail on the west, and an abandoned railroad grade on the north.

■ **Topography**: U.S. Geological Survey topographic maps depict the USP Leavenworth property at an average elevation of 860 feet above mean sea level (msl). The topography of the East Site generally consists of rolling hill slopes, some of which are moderately steep. Elevations on the East Site range from 825 to 890 feet above msl. The topography of the West Site is generally level with an average elevation of 860 feet above msl. To minimize topographic alterations and minimize potential adverse impacts, the BOP is proposing to employ sensitive site design practices together with implementation of soil erosion and sediment control measures during construction.

■ **Geology**: Geologic resources within the area of USP Leavenworth consist of loess deposits underlain by residual clay soils and the Lawrence Shale Member. The majority of the Lawrence Formation is comprised of gray shale and sandstone with minor red shale, coal, gray limestone and conglomerate. The thickness of this formation ranges from 140 to 250 feet. The potential for seismic activity is low to moderate in the Leavenworth County area. Development of the proposed project is expected to have only minor effects on geologic conditions at either site. Detailed subsurface engineering studies would be undertaken in advance of design and construction in order to ensure that sound building practices and appropriate design standards are implemented.

■ **Soils**: According to the Natural Resources Conservation Service, soils found within the East Site include Sharpsburg silty clay loams, Ladoga silt loam and Knox silt loam, Kennebec silt loams and Marshall silt loam. On the West Site, soils identified by the NRCS include Sharpsburg silty clay loams along with small areas of Sharpsburg silty clay loams. Prime farmland and hydric soils are

common within both sites. Appropriate soil erosion and sediment control measures would be employed during the construction phase to mitigate potential soil impacts.

- **Water Resources**: The project area is within the Missouri River Basin and the Independence-Sugar Watershed. The surface waters that drain the area consist of drainages and/or stormwater conveyances, ephemeral streams, and intermittent streams. There are 11 stormwater conveyances and/or drainages within the East and West sites with the majority of these features occurring on the East Site. According to FEMA flood maps, no portion of the East and West sites is located within the 100-year or 500-year flood zones. Development of the proposed project would result in increased runoff with a stormwater management system to be provided to collect, hold and slowly release runoff so as to not adversely affect downstream properties. Development of the proposed project at either alternative site would pose no significant direct or indirect adverse impact upon flood prone areas.

- **Biological Resources**: Biological resources have been determined through the use of database inventories and maps and other information sources, regulatory agency contacts and field surveys of each site. Dominant plant species and biotic communities, including wetland and non-wetland (upland) habitats, were identified and recorded. Aquatic resources found on the East and West study areas include ten ephemeral tributaries (4,663 linear feet, 0.235 acres), 11 intermittent tributaries (15,519 linear feet, 1.076 acres), five palustrine emergent wetlands (0.746 acres) and two open waters (2.990 acres). The location and extent of wetlands and open waters within both alternative sites are subject to verification by the U.S. Army Corps of Engineers (USACE) and impacts to wetlands and other waters of the U.S. will be subject to the Section 404 permitting process. Habitats were also compared to requirements of rare, threatened, endangered and other species of concern. Based on known habitat requirements, the possibility exists that western prairie fringed orchid could be occur within both alternative sites given the presence of the hay meadows found throughout the property. However, the hay meadows consist mostly of cultivated non-native species which provide unsuitable to marginal habitat for western prairie fringed orchid. The redbelly snake and smooth earth snake are both considered threatened within the state of Kansas with Designated Critical Habitat (DCH) for both species occurring within the riparian corridor adjacent to Corral Creek. Development of the proposed project is not expected to occur in DCH or potential habitat for these species and therefore, no adverse impacts are anticipated.

- **Cultural Resources**: Development within the East and West sites has the potential to direct impact four to six previously recorded archaeological sites, two to six newly recorded archaeological sites and two to four isolated find spots. Reviewing agencies have concurred that five of the newly recorded sites are potentially eligible for listing in the NRHP and that the six previously recorded sites, the ten remaining previously recorded sites, and the 15 isolated finds spots are not eligible for listing in the NRHP. If any of the five NRHP-eligible archaeological sites are to be effected by ground-disturbance activities, then a site evaluation will be performed to determine whether the sites have sufficient integrity and materials to address important research questions. No further archaeological studies are recommended for the 16 other archaeological sites or the 15 isolated find spots that are not eligible for listing in the NRHP. Both development alternatives will adversely affect contributing staff housing located within the USP Leavenworth Historic District and fronting along Metropolitan Avenue, as they will have to be demolished to accommodate an access road. Removal of these structures will adversely affect the integrity of the historic district's design, workmanship, and feeling. Construction of the FCI in open areas will also diminish the district's integrity of design, setting, and feeling.

Demolition of contributing structures within the historic district would constitute an adverse effect and the BOP will consult with SHPO on appropriate mitigation measures.

- **Hazardous Materials**: The East Site and West Site are located within the larger USP property and have been affected to some extent by hazardous materials use and disposal. Extensive environmental investigations have been conducted at the USP Leavenworth property. These investigations identified several current and historical industrial operations that produced or may have produced hazardous materials. These operations include a furniture factory, brush factory, printing factory, vehicle maintenance shop, and landscaping department. These operations generated varying quantities of waste oils, spent solvents, auto part cleaning agents, thinners, paint, stored polychlorinated biphenyl (PCB)-contaminated transformers, gasoline, and rinsed empty pesticide containers. The Recognized Environmental Conditions identified would warrant further action depending on the areas to be developed. In the case of the East Site, extensive subsurface investigations have already been conducted as part of larger environmental investigations and remediation on the main USP Leavenworth property. Because of the long history of on-site waste disposal, additional subsurface investigations in advance of construction should be considered.

- **Fiscal Considerations**: The USP Leavenworth property has been in federal ownership for many years and throughout that time has been exempt from tax payments. Therefore, FCI and FPC development will result in no direct loss of tax revenue to the City of Leavenworth, Leavenworth County or the State of Kansas. Conversely, positive fiscal impacts will result from the economic benefits derived from the facility's construction and operational phases, as well as from the increased economic activity generated by the facility and its employees. Expenditures for utility services and related expenses are recouped through the BOP's payment of user fees and, therefore, have no net impact.

- **Visual and Aesthetic Resources**: USP Leavenworth is the dominant feature within the project area. Its design, known as the Auburn Federal Style, is visually unique as it characterizes one of the three initial designs of USPs dating from the early 1900s. Other dominant features include the rolling hills within the western portion of the USP Leavenworth property, where a cemetery and Warden's house are located, as well as the corridor of Metropolitan Avenue. Metropolitan Avenue, along with its sidewalk and buffalo viewing area and Santa Fe Trail are the only publicly-accessible locations where the entire USP Leavenworth property (including the East and West Sites) can be directly viewed. Aesthetic features of the East Site are dominated by uneven topography which is bisected by several drainageways which are lined with trees and shrubs. Two relatively large surface water features are also present on the East Site. Aesthetic features of the West Site are dominated by the existing prison camp and adjacent buffalo pasture. While the West Site has unobstructed views from Metropolitan Avenue or Santa Fe Trail, the small buildings comprising the FPC and the Buffalo pasture are dwarfed by the adjoining central building of USP Leavenworth. Following development, views of the proposed project would reveal an architecturally integrated composition. Thoughtful site design and landscape planning would be integral parts of the project and would ensure a development which would be compatible with its surroundings.

- **Demographics**: Between 1990 and 2000, the population of the City of Leavenworth decreased eight percent to 35,420, and continued declining, although at a much slower rate, to 35,251 by 2010. Conversely, the population of Leavenworth County increased steadily during both decades reaching 76,227 by 2010. Of Leavenworth County's population, 46.9 percent were female and 53.1 percent were male. Also in 2010, 83.8 percent of Leavenworth County

residents were White, 9.4 percent were Black or African American; 0.8 percent were American Indian; 1.3 percent were Asian; 1.7 percent were of some other race; and an additional 3.3 percent were of two or more races. Of the total population, 5.7 percent were of Hispanic or Latino origin. In 2010, 6.8 percent of Leavenworth County residents were under the age of five; 20.6 percent ranged between five and 19 years of age; 18.9 percent ranged between 20 and 34 years of age; 22.9 percent were between 35 and 49 years of age; 19.7 percent were between 50 and 64 years of age; and 11.1 percent were 65 years or older. Development of the proposed project is expected to increase slightly area population without significant adverse impacts.

- **Economic Characteristics**: Leavenworth County ranks below the national average for per capita income but above the national average for median household income. According to the U.S. Census, per capita income in Leavenworth County in 2009 was $25,342 compared with $25,552 in Kansas and $27,041 for the U.S. However, the median household income for Leavenworth County in 2009 was $57,691 compared with $47,709 in Kansas and $50,221 for the U.S. The 2009 per capita income in the City of Leavenworth was $18,758 and the median household income was $40,681. According to the U.S. Census, 9.5 percent of the county's population, and 9.1 percent of the City's population had incomes below the poverty line, compared to 14.3 percent of the nation. Development of the proposed project is expected to provide employment and business opportunities to the region's residents and service industries while contributing approximately $35 million annually to the regional economy upon operation.

- **Housing Characteristics**: According to the U.S. Census, there were 26,697 housing units in Leavenworth County in 2010 of which approximately 26,447 units were occupied and 2,250 units were vacant. Approximately 1,414 of the 2,250 vacant units were located within the City of Leavenworth. Approximately 76 percent of the housing units in Leavenworth County were single-family detached units. In the City of Leavenworth the median value of individual housing units in 2009 was estimated to be $120,600 and the median monthly gross rent (with utilities) was estimated to be $727 (these figures were slightly higher in the county). In addition to the private housing market, approximately 15 single-family housing units are located on the USP Leavenworth property for use by BOP employees under a rental agreement. Housing demands associated with relocation of BOP employees into the region are not expected to pose a significant adverse impact. Rather, housing requirements associated with relocating employees is expected to support the regional housing market by stimulating a demand for housing.

- **Community Services and Facilities**:

  - **Police Protection**: Law enforcement in Leavenworth County is provided by municipal police departments and the County Sheriff's Department. The proposed facility would be equipped to handle virtually all emergency situations, relying upon its own staff to ensure overall institution security and other federal law enforcement agencies in the event of an incident at the facility. Significant adverse impacts to law enforcement services within the City of Leavenworth and Leavenworth County are not anticipated.

  - **Fire Protection**: Fire protection within the City of Leavenworth is provided by the Leavenworth Fire Department. The Department maintains three stations with the closest station located less than one mile south of the project site. The BOP undertakes stringent precautions to guard against fire emergencies within its facilities involving design and construction measures as well as through facility policies and procedures, inspections, fire prevention, control and evacuation planning. The BOP proposes to make provisions for

emergency back-up fire protection through mutual aid agreements for such assistance as needs arise. There is no reason to expect such situations would place an undue burden upon outside fire protection resources or agencies.

- **Medical Facilities**: Cushing Memorial Hospital, a general medical and surgical hospital located on Marshall Street in Leavenworth, is the primary health care facility serving residents of the City of Leavenworth. The greater metropolitan area of Kansas City has numerous hospitals within 20 to 40 miles of the project site including the Truman Medical Center, Saint Luke's Health System, University of Kansas Medical Center, Providence Medical Center, North Kansas City Hospital, Saint Joseph Medical Center, Olathe Medical Center among others. In addition to medical staff and facilities planned for the proposed facility, the BOP operates several Federal Medical Centers at locations around the United States to serve most non-emergency medical needs of federal inmates. The BOP proposes to make arrangements with area medical facilities for emergency assistance through contracts for such assistance. BOP emergency medical needs would not be expected to place an undue burden upon regional medical facilities or providers.

- **Public Education**: Public education in Leavenworth County is provided by six school districts: Basehor-Linwood Unified School District 458 [USD 458]), Easton (USD 449), Fort Leavenworth (USD 207), Lansing (USD 469), Leavenworth (USD 453) and Tonganoxie (USD 464). Student enrollment and school capacity data for the Leavenworth USD indicate that excess capacity exists in all District schools: elementary schools have capacity for an additional 526 students, middle schools have capacity for an additional 582 students and Leavenworth High School has capacity for an additional 250 students. These schools, and those in surrounding communities, are expected to accommodate the influx of school aged children of those BOP employees who transfer into the region. Consequently, the impact on the regional education system would be manageable.

■ **Land Use**: Much of the southern portion of the 754-acre USP Leavenworth property, bordered by Metropolitan Avenue, has already been developed with the USP, minimum-security satellite prison camp, warehouses, BOP staff housing, internal roadways, parking areas and other ancillary support facilities. Of the two alternative areas under consideration for development, the East Site consists of approximately 227 acres. Comprising primarily undeveloped land, the East Site is situated east of the USP, north of Metropolitan Street, west of Grant Avenue, and south of Corral Creek. The West Site comprises approximately 144 acres and is located west of the USP. The West Site includes the minimum-security satellite prison camp and is generally bounded by Metropolitan Avenue on the south, Santa Fe Trail on the west, and an abandoned railroad grade on the north. The West Site is also comprised of regularly maintained grassland with the southeastern corner, adjacent to Metropolitan Avenue, occupied by a large pasture which is home to several buffalo. The proposed project would have a direct impact on land use at the selected site by transforming a presently undeveloped area into a correctional institution use. However, the self-contained nature of the project would limit any potential direct impacts to the selected site with few, if any, impacts to adjoining land uses.

■ **Utility Services**:

- **Water Supply**: Potable water is provided to the Fort Leavenworth area by the Leavenworth Water Department which services approximately 10,000 customer meters and a population of approximately 50,000 people. Water sales have averaged about five million gallons per day (mgd) for the past 15 years. Provision of water supply to would require connecting the

proposed FCI and FPC to the water main located along the south side Metropolitan Avenue or to BOP's line north of Metropolitan Avenue. A flow analysis study is needed to determine if the BOP's line could meet the peak and fire flow demands of both the USP and the proposed project. Slight temporary impacts, such as noise, dust, soil erosion, and traffic disturbance which may occur during installation of water system improvements, would be minimized by ensuring proper design, permitting, and construction; limiting construction to the shortest periods possible; and by implementing effective soil erosion and sediment control and traffic safety practices.

- **Wastewater Collection and Treatment**: Wastewater collection and treatment services are provided by the City of Leavenworth which developed a Wastewater Master Plan and (Update) to address long-term operation of the wastewater collection and treatment system. Provision of sanitary sewer service to accommodate the proposed development would require improvements to pump stations and/or gravity sewer lines located downstream from the BOP's connection. The extent of any required improvements would be determined based on the results of a flow study of the route from the USP property to the treatment plant.

- **Electric Power**: Electric power is provided to the USP Leavenworth property by Westar Energy and according to company officials, the substations and transmission lines serving the area have ample capacity to serve new customers. Overhead electric lines owned and operated by Westar Energy and LJEC currently traverse the East Site and if selected for development, approximately 6,500 linear feet of overhead electric line would need to be relocated (development within the West Site does not require relocation of any overhead lines). Power to USP Leavenworth is from Westar's Metropolitan Substation with back up provided from the Northwest Leavenworth Substation. To serve the proposed FCI without back-up, Westar could use the circuit from the Northwest Leavenworth Substation with no significant improvements required to implement this option. To provide approximately 10,000 KW of back-up capacity, various improvements including construction of a new substation would be necessary. There are no significant limitations to providing the required electric power service and no significant adverse impacts are expected to result from development of the proposed project.

- **Natural Gas Service**: Natural gas service is provided to USP Leavenworth by Southern Star. Kansas Gas Service also provides natural gas service to the Leavenworth area. Kansas Gas Service purchases gas from third parties and distributes it locally within its network of lines. The nearest Kansas Gas Service pipeline capable of supplying a large new customer is located almost two miles from the USP property. Project implementation does not involve relocation or disruption to existing on-site natural gas pipelines. Other than temporary impacts such as noise, dust and erosion resulting from the extension of a natural gas service line, no significant adverse impacts would be anticipated to provide this service to the proposed project. Constructing the system improvements needed to supply natural gas service and securing any required permits and approvals would be the responsibility of Southern Star.

- **Telecommunications**: Telecommunications infrastructure in the Leavenworth area includes both copper and fiber optic lines. There are no significant limitations to extending telecommunications services to the alternative sites and no significant adverse impacts to telecommunications customers or providers are expected as a result of extending service to the proposed facility.

- **Solid Waste Management**: The BOP would contract for the collection and disposal of solid waste from the proposed facility. In addition, the BOP would implement a recycling program in an effort to minimize the volume of wastes requiring disposal. Toxic, hazardous and bio-medical wastes generated during construction and operation would be handled in accordance with applicable regulations. Solid waste generated at USP Leavenworth is transported to the Leavenworth County transfer station then on to the Hamm Landfill in Lansing, Kansas for final disposal. This 570-acre landfill is permitted to accept all solid wastes except hazardous waste with approximately 1,500 tons of waste arriving daily. Representatives report that the landfill has sufficient long-term capacity to accept the volume of solid wastes generated by the proposed facility. No significant adverse impacts are expected to solid waste management operations as a result of BOP activities.

■ **Transportation Systems**: Access to USP Leavenworth property is from Metropolitan Avenue. Metropolitan Avenue is one of the major east-west corridors in the City of Leavenworth and is an important link to communities across the Missouri River to the east, and a link north to Atchison, Kansas. Metropolitan Avenue is the local name for Kansas State Route 7 (KS 7), which in the vicinity of USP Leavenworth, is also U. S. Route 73 (US 73). US 73/KS7, also known as Amelia Earhart Drive, extends northwest of Leavenworth making connections with Atchison, Kansas located approximately 25 miles north-northwest of Leavenworth. East of the USP, Metropolitan Avenue crosses the Centennial Bridge over the Missouri River. East of the river this highway is Missouri State Route 92 (MO 92), which makes connections with I-435. South of the USP and perpendicular to Metropolitan Avenue are local numbered and named streets in a predominantly residential part of Leavenworth. The proposed project is expected to impact traffic operations on the primary access routes by the addition of employee, visitor, and service vehicle traffic. During the planning and design process, the BOP will consider the need to improve roadway access by installation of various traffic controls and other improvements to and from the project site. Internal roadway improvements from the public access road to the correctional facility would be the responsibility of the BOP.

■ **Meteorological Conditions**: Kansas experiences four distinct seasons with cold winters and hot, dry summers common. According to the U.S. National Climatic Data Center, temperatures in the Leavenworth area range from an average low of about 20° Fahrenheit (F) in January to an average high of nearly 90° F in July. The maximum temperature reaches 90° F an average of 44 days per year and the minimum temperature falls below the freezing point on average 114 days per year. The Leavenworth area receives nearly 41 inches of precipitation during an average year with the largest share being received in May and June. The Leavenworth County area and the State of Kansas also rank high as compared to the rest of the U.S. in average daily wind speed. The Leavenworth area has a history of severe weather (i.e., tornado activity) with occurrences more common than Kansas and U.S averages. Area weather patterns will be addressed during design, construction, and operation of the proposed facility. Operation of the proposed correctional facility is not expected to result in significant emission of CFC's, halons or greenhouse gases. The facility would not change the larger-scale climatology of the selected site or have a significant adverse impact on the surrounding region.

■ **Air Quality:** Leavenworth County is in attainment for all criteria air pollutants. The relatively rural nature of the county and the absence of large manufacturing facilities, power generating stations, and other similar emission sources contribute to the area's good air quality. Potential air quality impacts would result from construction activities, boiler and backup generator operations, and vehicles traveling to and from the facility. Construction-related impacts are

largely the result of fugitive dust emissions from site preparation and construction activities. Such impacts are temporary and can be controlled by using properly maintained construction equipment, using tarp covers on trucks transporting materials to and from the construction site, wetting unpaved surfaces, prohibiting the burning of construction wastes on-site, etc. A boiler system would be the primary stationary source of air emissions, however, the volume of fuel combustion by-products would have no significant adverse impact on air quality. In the event of a power failure, standby generators would be employed to provide temporary power; their installation and operation would conform to applicable regulations for use on a contingency basis. No significant air quality impacts are expected to result from the relatively low traffic volumes associated with the proposed facility. To mitigate potential air quality impacts, the BOP routinely encourage the formation of carpools and vanpools and, where available, the use of public transit.

- **Noise Considerations**: Lands in commercial use, residential development, and the existing USP and minimum-security camp constitute the predominant land uses found in and around the USP property. There are no major noise sources located nearby. The large land area comprising the sites also limits any noise originating from the sites to be experienced within adjoining properties. By virtue of this setting, noise sources affecting the alternative sites are largely confined to motor vehicle operations along adjacent and nearby roadways, sporadic bird and wildlife calls, and aircraft overflights. The occasional noise from motor vehicle traffic on nearby roadways is not substantial and is barely audible within interior portions of the large property. No sensitive receptors of noise were found within the area immediately bordering on or surrounding the proposed site. Temporary noise impacts can be anticipated during the construction phase and would be confined, when possible, to normal working hours. A slight, permanent increase in noise levels can be expected along principal access routes resulting from traffic arriving and departing the proposed facility. However, the level of noise associated with project construction and operation is not expected to constitute a significant adverse impact.

D. CONSIDERATION OF SECONDARY AND CUMULATIVE IMPACTS

Construction and operation of the proposed project would result in less-than-significant impacts to the immediate project site, USP Leavenworth property and host region. Less-than-significant impacts would be anticipated on utility services, traffic and transportation movements to and from the facility, noise levels, and air quality in the vicinity of the project site. The compact nature of the proposed development coupled with placement within the USP Leavenworth property would not significantly affect local land use patterns and would have little, if any, secondary impacts on land use. Extending water supply, wastewater collection, electric power and natural gas services within the USP Leavenworth property to serve the proposed project is not expected to induce or foster additional development in the area. With the decline in the City of Leavenworth's population since 1990, increased development activity is an intended consequence of the proposed project. Any such potential impact would be considered by Leavenworth and Leavenworth County officials in the planning and development of community facilities and/or utility system improvements. In addition, such growth would be consistent with the goals of local planning and development officials to secure new employment opportunities and stimulate new economic activities in the area.

Construction and operation of the proposed project, in concert with other actions, would also contribute to the efficient operation of the national criminal justice system. Beneficial impacts, both direct and secondary, to the region's economy would also be realized by virtue of the substantial construction and operating budgets associated with the proposed project. Secondary and construction-

related impacts and other potentially adverse impacts would be controlled, mitigated and avoided to the extent possible. There are no present or foreseeable actions occurring in Leavenworth or Leavenworth County that are directly attributable to the proposed action.

The proposed project is not expected to result in cumulative effects, in terms of intensity or context, to any social, cultural or natural features. The incremental rate of growth in the Leavenworth area and surrounding Leavenworth County region, the lack of other reasonably foreseeable actions, the current status of resources listed, and the local regulatory framework, all function to offset potentially negative cumulative impacts.

E. NEXT STEPS

Comments on the Draft EIS are invited and should be directed to:

- **Richard A. Cohn, Chief**
  Capacity Planning and Site Selection Branch
  Federal Bureau of Prisons
  320 First Street, NW
  Washington, D.C. 20534

The Draft EIS will be circulated for review and comment for a period of not less than 45 days, during which the BOP will host a public hearing in the City of Leavenworth. Following the end of the public comment period, the BOP will prepare and publish a Final EIS in accordance with NEPA, and which will incorporate additional data which may come to light into the decision-making process and respond to all comments received on the Draft EIS. The Final EIS will be subject to a public review period of not less than 30 days. A decision on whether to proceed with the proposed action and if so, where, would be made following the end of the public review period. That decision will take into account all environmental analyses and public comments and will be documented by a Record of Decision issued by the Director of the BOP, pursuant to the requirements of the NEPA and U.S. Department of Justice regulations.

I. INTRODUCTION

I. INTRODUCTION

A. PURPOSE OF THE ENVIRONMENTAL IMPACT STATEMENT

This document, together with its appendices and incorporations by reference, constitutes a Draft Environmental Impact Statement (EIS) prepared pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969, as amended. Section 102(2)(C) of NEPA provides that all agencies of the Federal government shall prepare a detailed statement on major Federal actions significantly affecting the quality of the human environment. The Draft EIS follows the Council on Environmental Quality *"Regulations for Implementing NEPA"* (40 Code of Federal Regulations [CFR] Part 1500-1508). Its purpose is to present an assessment of the environmental consequences of a proposed action by the U.S. Department of Justice, Federal Bureau of Prisons (BOP), to further develop USP Leavenworth, located north of the City of Leavenworth, Kansas by constructing and operating a new Federal Correctional Institution (FCI) and Federal Prison Camp (FPC) (Exhibit I-1). The FCI would be designed to house approximately 1,500 medium-security inmates and the FPC would be designed to house approximately 300 minimum-security inmates for a total population of approximately 1,800 inmates.

The EIS, the assessment it presents, and the procedures by which the environmental investigations are conducted and incorporated in decision-making are parts of a process established by NEPA to ensure that the environmental consequences of federal projects are adequately taken into account. The process is designed to ensure that public officials make decisions based on a full understanding of the environmental impacts of proposed actions and take all appropriate steps to *"protect, restore and enhance the environment"* (40 CFR 1501.7).

Chapter I of the EIS provides the background and context of the proposed action while Chapter II describes alternatives to the proposed action. Chapter III describes existing conditions within the potentially affected natural and manmade environments and potential impacts of the proposed action and measures to mitigate potential impacts. Chapters IV, V and VI respectively, comprise a List of References used in preparing the EIS, a List of EIS Preparers, and a List of Agencies and Officials to receive a copy of the EIS for review and comment. Additional information is incorporated within various appendices, as indicated by the Table of Contents.

B. SCOPING

Regulations for the implementation of NEPA are promulgated by the Council on Environmental Quality (40 CFR 1501.7) and include a requirement for *"an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action."* The process is known as *"scoping*." In accordance with these regulations, the BOP conducted the following scoping activities:

- Published a *Notice of Intent to Prepare a Draft EIS* for the development of a new FCI and FPC in the Federal Register on December 29, 2010 (Volume 75, Number 249).

- Invited federal, state, county, and local agencies, officials, organizations, and the public to participate in the scoping and environmental impact study process.

- Held a Public Scoping Meeting at City Hall in Leavenworth, Kansas on January 20, 2011. BOP officials presided at the meeting and approximately 50 citizens and officials attended. Members of the media were also present and the Public Scoping Meeting was reported in newspapers with local and regional circulations. The proposed project along with the NEPA process, were described and issues and concerns were identified by those in attendance. A transcript of the Public Scoping Meeting is included in Appendix A.

- In furtherance of its public scoping activities, the BOP prepared a Public Scoping Meeting Handout that describes the BOP, the proposed action, and alternative project locations under consideration within the USP Leavenworth property in Leavenworth and sought information and expressions of interest and concern at the onset of the EIS process. This document was made available to all individuals who attended the Public Scoping Meeting on January 20, 2011, and key state and federal regulatory agency officials, Native American organizations among others.

- Conducted scoping and information/coordination meetings in Kansas City, Kansas; Topeka, Kansas; and Leavenworth, Kansas during 2011 involving representatives of local, state and federal agencies and BOP officials. Information concerning the BOP and the proposed project was shared with meeting attendees and procedures and protocols required to ensure compliance with NEPA and the regulations and requirements of various federal and state agencies were discussed. Comments, guidance, and recommendations received at the meetings were incorporated within the project scoping and EIS study process.

- Determined the scope and significance of issues to be included within the EIS on the basis of all relevant environmental considerations and information obtained throughout the scoping process. The determination defined the scope and significance of the issues to be included in the Draft EIS and identified issues that could be eliminated from detailed study as irrelevant or insignificant.

- Identified additional data requirements on the basis of information obtained from the scoping process so that analyses and findings could be integrated into the Draft EIS.

Following publication of the Notice of Intent in the Federal Register and the subsequent Public Scoping Meeting, and throughout the months of Draft EIS preparation that followed, BOP officials and staff continued to review incoming correspondence, newspaper articles and other indications of interest or concern on the part of regulatory agencies, local and national organizations, elected officials, Native American organizations and the public regarding the proposed project. During this time, meetings and discussions were also held with federal, state, county, and local officials and regulatory agency representatives to further refine EIS tasks. The resulting scope of study is indicated by the foregoing Table of Contents and the materials presented in the subsequent sections of this document and its incorporations by reference.

Publication of the Draft EIS initiates a public comment period which will last no less than 45 days, during which the BOP will host a public hearing in the City of Leavenworth. Following the end of the public comment period, the BOP will prepare and publish a Final EIS in accordance with NEPA, and which will incorporate additional data which may come to light into the decision-making process and respond to all comments received on the Draft EIS. The Final EIS will be subject to a public review period of not less than 30 days. A decision on whether to proceed with the proposed action and if so, where, would be made thereafter by the Director of the BOP. That decision will take into account all environmental analyses and public comments and will be documented by a Record of Decision (ROD) as stipulated by the NEPA regulations.

C. BACKGROUND

The BOP was established in 1930 to provide more progressive and humane care for federal inmates, to professionalize the prison service, and to ensure consistent and centralized administration of the 11 federal prisons in operation at the time. Since the inception of the BOP in 1930, its responsibilities have grown, as has the prison population, and by the end of 1930, the agency operated 14 facilities housing just over 13,000 inmates. By 1940, the BOP had grown to 24 facilities housing 24,360 inmates. Except for a few fluctuations, the number of inmates did not change significantly between 1940 and 1980, when the inmate population was 24,252. However, the number of facilities almost doubled (from 24 to 44) as the BOP gradually moved from operating large facilities confining inmates of many security levels to operating smaller facilities that each confined inmates with similar security needs.

As a result of federal law enforcement efforts and new legislation that dramatically altered sentencing in the federal criminal justice system, the 1980s brought a significant increase in the number of federal inmates. The Sentencing Reform Act of 1984 established determinate sentencing, abolished parole and reduced good time; additionally, several mandatory minimum sentencing provisions were enacted in 1986, 1988 and 1990.

From 1980 to 1989, the inmate population more than doubled, from just over 24,000 to almost 58,000. During the 1990s, the population more than doubled again, reaching approximately 136,000 at the end of 1999 as efforts to combat illegal drugs and illegal immigration contributed to significantly increased conviction and incarceration rates.

Today, the BOP consists of 117 institutions, six regional offices, a Central Office (headquarters), and 28 community corrections offices. The regional offices and Central Office provide administrative oversight and support to BOP facilities and community corrections offices. Community corrections offices oversee community corrections centers and home confinement programs. The BOP is responsible for the custody and care of approximately 218,000 federal offenders. Approximately 81 percent of these inmates are confined in BOP-operated correctional facilities or detention centers. The remainder is confined through agreements with state and local governments or through contracts with privately-operated community corrections centers, detention centers, prisons and juvenile facilities.

Among the facilities currently operated by the BOP are the USP and FPC located in Leavenworth, Kansas approximately 34 miles northwest of Kansas City in Leavenworth County. The USP is notable for many reasons. Among them is that the USP, opened in 1906, was the first federal correctional facility. In 1895, Congress transferred the military prison at Fort Leavenworth to the U.S. Department of Justice and when the War Department objected, Congress authorized 1,000 acres adjacent to the prison for a new penitentiary to house approximately 1,200 inmates. Today, USP Leavenworth houses approximately 1,858 adult male inmates with an additional 430 minimum-security inmates housed in an adjacent prison camp. During Fiscal Year (FY) 2006, the BOP transitioned USP Leavenworth from a high-security facility to a medium-security facility to accommodate the growth in the medium-security inmate population. This transition was part of the BOP's long-range plan to utilize older high-security institutions to house medium-security inmates as new and more modern high-security facilities are developed (BOP, 2011). At this time, the BOP is proposing development of a FCI designed to house approximately 1,500 medium-security inmates and an FPC designed to house approximately 300 minimum-security inmates.

Operation of the current USP, which currently houses 1,886 inmates, employs approximately 363 staff while operation of the FPC (currently housing approximately 436 inmates) employs 20 staff. The new

FCI and FPC are expected to employ approximately the same number of full-time staff (350 employees). At this time, it has not been determined whether the BOP will replace the existing FPC with a new FPC or if both the existing and proposed FPCs will be operated simultaneously. For the purposes of this EIS, the BOP is evaluating impacts using the conservative estimate of a potential increase of 1,800 inmates over present conditions.

D. PURPOSE AND NEED FOR THE PROPOSED ACTION

1. The National Picture

The BOP is responsible for carrying out judgments of the federal courts whenever a period of confinement is ordered. Subsequently, the mission of the BOP is to protect society by confining offenders in the controlled environments of prisons and community-based facilities that are safe, humane, cost-efficient, and appropriately secure, and that provide work and other self-improvement opportunities to assist offenders in becoming law-abiding citizens.

The federal inmate population has grown rapidly and continuously since the 1980s. To understand how rapidly and continuously, and the resulting demands placed upon the BOP to house the federal inmate population, a historical perspective is useful. In January 1981, the BOP housed approximately 23,800 inmates. By April 1986, the BOP was housing approximately 38,700 inmates; an increase of over 60 percent during that time. Eight years later, in March 1994, the number of federal inmates had grown to approximately 83,200; an increase of 115 percent during this period. By October 1999, the federal inmate population had grown to approximately 117,100 (representing a 40 percent increase over five years) and by June 2001, approximately 129,200 inmates were held in BOP facilities (an additional 10 percent increase).

As of October 13, 2011, approximately 177,834 inmates are housed within the 117 federal correctional facilities that have levels of security ranging from minimum to maximum. An additional 26,327 federal inmates are housed within privately-managed secure facilities and approximately 13,485 inmates are housed in other contract facilities for a total federal inmate population of approximately 217,646. At the present time, the federal inmate population exceeds the combined rated capacities of the 117 federal correctional facilities and providing additional bedspace capacity is a high priority.

2. Description of Security Levels

The BOP operates institutions of various security levels to appropriately house a broad spectrum of offenders. Security levels are based on such features as the presence of external patrols, guard towers, security barriers, or detection devices; the type of housing within the institution; internal security features; and the staff-to-inmate ratio. Inmates are housed in facilities that are rated as minimum-security, low-security, medium-security and high-security.

- **Minimum-Security**. Minimum-security institutions, also known as Federal Prison Camps (FPC) and satellite work camps, are characterized by dormitory-style housing, a relatively high inmate-to-staff ratio, and no fences. These institutions are work-and program-oriented, and many are located adjacent to other federal correctional institutions or on military installations where inmates help serve the labor needs of the institution or base. Minimum-security institutions are currently operating at approximately 112 percent of capacity.

- **Low-Security**. Low-security FCIs have double-fenced perimeters, mostly dormitory-style housing, and strong work and program components. The inmate-to-staff ratio in low-security institutions is higher than in minimum-security facilities. At present, low-security FCIs are operating at approximately 136 percent of capacity.

- **Medium-Security**. Medium-security FCIs have strengthened perimeters (often double-fences with electronic detection systems), cell-type housing, a wide variety of work and treatment programs, and an even more stringent inmate-to-staff ratio than do low-security institutions, providing even greater controls. At this time, medium-security FCIs are operating at approximately 152 percent of capacity.

- **High-Security**. High-security institutions, also known as United States Penitentiaries (USP), have highly secure perimeters (either walled or double-fenced with a taut wire fence), multiple and single occupant cell housing, guard towers and/or non-lethal/lethal fences, and close staff supervision and movement controls. High-security USPs are currently operating at approximately 153 percent of capacity.

Federal court sentencing guidelines are resulting in longer terms of confinement for serious crimes. Increases in the number of immigration offenders and efforts to combat organized crime and drug trafficking are also contributing to a continuing inmate population increase. As a result of these actions, the federal inmate population is projected to increase to approximately 224,268 by the end of FY 2012; to 230,768 by the end of FY2013 and 251,701 by the end of FY 2018. A variety of measures have been undertaken to accommodate the growth of the federal inmate population including acquisition and adaptation of facilities originally intended for other purposes, the expansion and improvement of existing correctional facilities, the expanded use of contract beds, and construction of new institutions such as that proposed at USP Leavenworth, Kansas.

3. The North Central Region of the United States

The BOP is facing continuous growth in the federal inmate population among all security levels and in all geographic regions of the country. In response, the BOP addresses current and projected bedspace needs in various ways including the planning and development of new federal correctional facilities in areas of the country in which it has determined a priority need exists. This approach is part of an overall geographically balanced program designed to alleviate crowding and to operate in an efficient and effective manner, while assisting the BOP to fulfill its mandate.

One of the areas of the country which is considered a priority is the BOP's North Central Region, where the need for increased bedspace is particularly acute. The BOP maintains detailed records concerning the origin of federal inmates under its jurisdiction and, for purposes of this analysis, those inmates originating from the north-central United States are of particular interest. The research has revealed that approximately 22,000 federal inmates of all security levels originate from the states of Kansas, Missouri, North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Iowa, Illinois, Indiana, Colorado, and Nebraska which together comprise the BOP's North Central Region.

The BOP manages inmates from the north-central United States in facilities located throughout the North Central Region and beyond. However, limits on the availability of medium-security bedspace within the North Central Region requires some inmates to be housed in facilities outside the region which gives rise to a greater degree of isolation than is normally experienced among the inmate population. The sometimes vast distances between inmate families and acquaintances and the locations

of institutions housing federal inmates results in far more difficult and costly efforts at visitation and, therefore, reduced visitation rates. Provision of additional bedspace in the Leavenworth area would allow the BOP to better manage inmates originating from the north-central states, and allow them to be housed nearer to their families and friends, which aids in the rehabilitative process. It is the BOP's policy that, to the extent possible, it will house inmates within a 500-mile radius of their homes. Locating the proposed FCI and FCP at USP Leavenworth would advance implementation of that policy for inmates originating from states comprising the North Central Region. Additionally, development at USP Leavenworth is advantageous because the BOP can share resources and services among the facilities while development on BOP-owned property at USP Leavenworth does not involve any additional land acquisition.

4. Medium-Security Bedspace Needs

The BOP is housing approximately 61,000 medium-security inmates that comprise approximately 28 percent of the overall federal inmate population (September 2011). While system-wide crowding is approximately 139 percent of capacity, medium-security facilities are currently operating at approximately 151 percent of capacity and are expected to grow to approximately 172 percent by the end of FY 2018, contributing to the rationale for planning development of new medium-security facilities around the country and for making construction of an additional medium-security institution an important BOP priority.

As noted earlier, the overall BOP inmate population is projected to reach approximately 235,684 by the end of FY 2018. By that time, system-wide crowding is projected to increase to 145 percent of capacity. The inmate population of medium-security facilities is projected to reach 172 percent of the total capacity. Of the 75,000 medium-security inmates in BOP institutions, approximately 11,500 (or 15 percent) are housed in facilities located in the North Central Region.

Without the additional capacity represented by the proposed development of the FCI components of USP Leavenworth, crowding at the medium-security level in the North Central Region would increase to 170 percent of rated capacity by the end of FY 2014. Furthermore, without development of the proposed FCI, system-wide crowding would increase from a projected 145 percent to 148 percent of rated capacity by the end of FY 2014. Without development of the proposed FCI, overall crowding within the BOP's medium-security institutions would increase from a projected 172 percent to 176 percent of rated capacity by the end of FY 2018.

5. BOP Response to Bedspace Needs

Measures have been undertaken by the BOP to alleviate the growth of the federal inmate population including acquisition and adaptation of facilities originally intended for other purposes, the expansion and improvement of existing correctional facilities, the expanded use of contract beds, and construction of new institutions. The BOP's facility expansion program includes both new construction and renovation of Federal Prison Camps, Federal Medical Centers (FMCs), FCIs, Federal Correctional Complexes and USPs such as that proposed for development at USP Leavenworth. Table I-1 provides a list of recent and ongoing BOP development projects.

TABLE I-1
STATUS OF FEDERAL CORRECTIONAL FACILITY DEVELOPMENT ACTIVITIES
FACILITIES IN THE CONSTRUCTION/ACTIVATION STAGE

Location	Facility Type
Berlin, New Hampshire	Medium-Security FCI and Minimum-Security FPC
Mendota, California	Medium-Security FCI and Minimum-Security FPC
Aliceville, Alabama	Medium-Security FCI and Minimum-Security FPC
Hazelton, West Virginia	Medium-Security FCI
Yazoo City, Mississippi	High-Security USP and Minimum-Security FPC

Source: Federal Bureau of Prisons, 2011.

E. DESCRIPTION OF THE PROPOSED ACTION

The BOP is facing severe bedspace shortages throughout the federal prison system, with correctional facilities at all security levels crowded. In response, the BOP has committed significant resources to identifying, acquiring and developing sites for one or more new correctional facilities. This effort has resulted in the construction of new federal correctional facilities in McDowell County, West Virginia; Berlin, New Hampshire; Yazoo City, Mississippi; Aliceville, Alabama; and Mendota, California. However, projections show the federal inmate population continuing to increase, and even with the development of these facilities, the additional demands for bedspace would continue to exceed the available capacity.

Since the 1980s, the BOP has been undertaking investigations throughout the United States in an effort to identify prospective sites capable of accommodating one or more new federal correctional facilities and communities willing to host such facilities. By understanding the needs of the BOP and the requirements for siting new federal correctional facilities, potential locations for development of such facilities are identified and brought to the attention of the BOP by local officials throughout the nation. Through this process, local officials typically identify possible locations and in recent years, sites located in Letcher County, Kentucky; Coos County, New Hampshire; Fresno County, California; Pickens County, Alabama and throughout southern West Virginia have been offered to the BOP for consideration. Each has been subjected to various technical studies with many judged worthy of consideration and addressed within Draft and/or Final EISs prepared by the BOP. Although sites in many jurisdictions were considered, for various reasons, development by the BOP has not occurred at each location.

Understanding the needs of the BOP and the requirements for siting new federal correctional facilities, potential locations for FCI and FPC development were considered. First among such locations considered were adjacent to other existing correctional facilities located within the BOP's North Central Region. The rationale for selecting the USP Leavenworth property for detailed study included the following:

- BOP controls the 754-acre property which contains an abundance of undeveloped land potentially suitable for correctional facility development.

- Development within the USP Leavenworth property avoids the time and costs associated with land acquisition of a new site.

- Infrastructure necessary to support additional correctional facility development is currently in place in the Leavenworth area.

- The Leavenworth community and the BOP have had a positive and mutually beneficial relationship for many years which is expected to continue into the future.

- Similar conditions, involving sufficient developable land and infrastructure, are not evident or equivalent at other facilities within the North Central Region.

Additional information concerning the BOP's site identification, evaluation and selection process is provided in Chapter II (Alternatives).

The mission of the proposed FCI and FPC would be to provide a safe, secure and humane environment for the care and custody of high-security federal inmates originating primarily from the North Central Region. General design characteristics of the proposed facility, internal and external (perimeter) security arrangements, profiles of the inmates to be housed at the FCI and FPC, and other aspects of the proposed facility are described in the sections that follow.

1. General Design Features of the Proposed Federal Correctional Institution

All structures comprising the proposed FCI would be similar in scale and appearance to a light industrial park or secondary school with most buildings comprising one- and two-story structures. The buildings would provide multi-purpose activity spaces, with areas divided according to function. Basic groupings would include administration, services, housing, religion, education, training, recreation, prison industries, and a central utility plant, together having a gross building area of approximately 580,000 square feet. Buffer zones of undeveloped acreage would generally surround the facility, providing both visual and physical setbacks from the site boundaries. A single road for controlled access to the proposed FCI from the public roadway system is planned. A parking lot accommodating both employees and visitors would be located near the public entrance to the proposed facility.

The general site design of the proposed FCI would present an integrated composition of structures reflecting the differing characteristics and requirements of the facility's major components. An administration area would be located close to the main entrance of the facility, where it would be readily accessible to visitors. Offices for the warden and other administrative staff would be included in this area as well as office space for other departments, such as financial management and personnel. A visitor waiting area would also be located near the front entrance with the visiting room designed so that it can also be used for other activities. Multi-purpose activity space would be provided for group meetings and general assembly services as well as indoor and outdoor recreation areas. Program spaces for education, vocational training, and recreation activities would also be developed, as well as a small chapel that would be used for multi-denominational religious services. In order to provide inmate health care services, a medical clinic for general examination and treatment, including a small in-patient suite and a dental clinic, is also planned. The new facility would also include a dialysis unit (approximately 48 beds) as well as a long-term care unit (approximately 128 beds).

The institutional atmosphere would be as stress-free as possible for the welfare of both inmates and BOP staff. The interior functions would be designed to foster positive interpersonal relationships between inmates and staff. Staff would interact directly with inmates since they would not be separated by architectural barriers. Space would be provided to accommodate administrative functions

and a variety of activities and programs. All structures would be fire-resistant and applicable building code requirements, including the National Fire Protection Association 101 Life Safety Code, would be applied to the FCI and FPC as determined appropriate by the BOP.

2. Perimeter Security Measures

The proposed FCI requires stringent perimeter security systems, while other components, including the FPC, warehouses, etc. are not subject to perimeter security measures and are generally un-fenced. Perimeter security at the FCI facility would be provided by two parallel 12-foot high chain-link fences with coils of barbed tape concertina wire mounted on the fences and placed within the 20-foot wide space between the two fences. BOP staff in vehicles would be assigned to patrol the perimeter of the FCI facility and respond to automatic alarms received from the electronic detection system. Employee and visitor traffic, along with service vehicles traveling to the facility, would be separated from patrol traffic operating along the perimeter road surrounding the FCI. There is no plan to install fencing around the entire USP Leavenworth property.

Energy-efficient high-mast lighting would also encircle the new FCI facility to provide ground and perimeter illumination to be supplemented by common walkway and roadway lighting. Attention would be given to the avoidance of excessive illumination of adjacent areas. Searchlights or similar floodlighting associated with traditional prison security are not anticipated. Appendix B provides photographs of a recently-developed FCI and is indicative of the FCI proposed for development in Leavenworth, Kansas.

3. Internal Security Precautions

Internal BOP security precautions at the proposed FCI facility would require all inmates to be formally counted and physically identified five times a day on weekdays and six times a day on weekends. BOP staff would verify the whereabouts of each inmate throughout the workday and would also perform census counts for inmate accountability. In addition, inmates are observed and recorded via strategically placed video cameras, and inmate telephone conversations may be recorded. Inmate quarters would be supervised 24 hours a day and would be checked often for contraband material. An intensive urinalysis program, involving both specific and random sampling, would be carried out to detect and deter drug or alcohol use by inmates. The interior spatial arrangements of the facility would provide internal control while permitting relatively free movement within the secure perimeter of the institution. The individual rooms in all units would have locking devices that enable staff in the unit to provide necessary controls when required.

The proposed FCI would rely on its own staff or other federal law enforcement personnel to ensure overall security. It is also the responsibility of the United States Marshals Service and the Federal Bureau of Investigation to assist the BOP, if necessary, in the event that an inmate is reported missing. State and local law enforcement agencies would also be advised of the situation and would assist the BOP as necessary. Local media would be contacted as a means to inform the public. Law enforcement personnel would also be responsible for removing any person involved in violating a federal law, such as trespassing, damaging federal property or possessing contraband on the BOP's property.

4. General Housing Units

General housing units within the FCI facility would consist of individual cells that can accommodate more than one person. Housing units are generally two to four-level structures that also contain activity

spaces and office spaces for staff assigned to work in the units. Each inmate housing unit would contain a centrally located multi-purpose space devoted to activities such as watching television, playing table games and attending group meetings. Small activity rooms would also be provided for quiet activities such as reading and would be used for group and individual counseling sessions.

The BOP employs a decentralized method for managing its institutions. Under this method, staff is assigned to work in the housing units where the inmates live. Offices for correctional officers, unit managers, case managers, counselors and secretaries are also located in the inmate housing areas. Other staff, such as psychologists, teachers and chaplains, would periodically visit the units to meet with inmates and unit staff. This system permits greater contact, communication and interaction between staff and inmates. Nonetheless, the first consideration for all BOP staff, regardless of their position, is security and supervision of inmates.

5. Special Housing Unit

There are two categories of special inmate housing: disciplinary segregation and administrative detention. Disciplinary segregation is a status of confinement assigned to inmates who have violated institution rules or regulations, have had a hearing by a unit disciplinary committee or a Disciplinary Hearing Officer (DHO), and have been assessed a sanction by that committee or DHO. Administrative detention is a related category of confinement for inmates who are being investigated for rule infractions or being held for non-disciplinary reasons, but have not yet had a hearing as prescribed by disciplinary policy, or who are being held outside the general inmate population for non-disciplinary reasons.

One structure usually accommodates both disciplinary segregation and administrative detention and generally comprises three wings; two wings for administrative detention and one wing for disciplinary segregation. Unlike the general housing units, there is no need for a large, central multi-use space since inmates are confined to their cells much of the time and are not allowed to congregate. Minimal office space is required since unit managers, case managers and counselors are not stationed in the unit and instead conduct periodic visits to the inmate housing. Since inmates are housed in segregation temporarily, BOP staff from their original units visit them in the special housing unit.

6. Inmate Profiles

The BOP uses a classification system to determine inmate security level based on factors such as severity of the offense, expected length of incarceration, and types of prior offenses. Federal Prison Camps and satellite work camps are generally the least restrictive environment and house inmates at the lowest security levels, usually those serving short sentences or nearing the completion of longer sentences begun elsewhere. Low- and medium-security FCIs present increasingly more restrictive environments, while USPs provide high-security and very restrictive environments. Administrative maximum facilities provide for the highest level of security and the most restrictive conditions within the federal prison system.

The inmate classification system has proven effective in that it enables the BOP to separate violent offenders from the rest of the inmate population, keep the inmate population in better balance, decrease the number of inmate transfers, and make better use of available resources, while confining offenders in the least restrictive environment. Exhibit I-2 presents recent statistics compiled by the BOP which provide insight into the current composition of inmates housed in medium-security facilities (the facility proposed for development at USP Leavenworth).

7. Work Programs

All sentenced offenders who are medically-able are required to complete daily work assignments and all offenders have opportunities to participate in self-improvement programs including education, vocational training, religious instruction and counseling. Federal inmates spend their initial two weeks in orientation where their needs, requirements, and interests are identified and where they learn about program and work opportunities. After orientation, inmates receive program and work assignments which are periodically reviewed and changed, if necessary, through inmate unit team consultation. Inmates not working in UNICOR are assigned jobs elsewhere in the facility. All medically-able inmates are required to work at productive jobs. Work assignments reduce idleness and tension, and create a more easily managed environment. Institution work assignments may be in food service, the business office, carpentry and electrical maintenance, or any other work necessary for the upkeep and operation of the facility. Efforts are also made to place inmates in job assignments where they can use previously acquired skills or can receive on-the-job training in an employable skill.

Program opportunities may include formal education from adult basic education through post-secondary courses, vocational training, social education programs to enhance self-confidence, library services including a law library, athletic and leisure programs, group and individual counseling, chaplaincy services, and inmate organizations. The literacy standard for inmates in federal prisons is a high school diploma or its equivalent. Inmate promotions in prison industries and institutional assignments to jobs above the entry level are contingent on meeting General Education Development literacy standards.

Community involvement in inmate programs within the facility is also encouraged and local civic and veterans groups often form chapters within the facility. Competitions at the institution with visiting sports teams, as well as participation with religious groups and service organizations, such as Alcoholics Anonymous, are usually arranged on an on-going basis.

F. POTENTIAL ALTERNATIVE ENERGY SOURCES AND RESOURCE CONSERVATION

As a federal agency, the BOP is mandated to conserve energy in the design and operation of its facilities. In response to this mandate and the national concern for the environment, individual institutions and the BOP as a whole have developed a pro-active approach to resource conservation and pollution prevention and a commitment to make a contribution to the nation's environmental well-being. This commitment has led to various BOP-wide environmental initiatives, including resource conservation and pollution prevention programs. The goal of all New Bureau institutions is LEED Silver Certification using current version of LEED from U.S. Green Building Council (USGBC).

The BOP has been the recipient of several awards recognizing its achievements in energy and environmental management. Among those awards was the Sustainable Design/Green Building Category for the design and construction of the FCI located in Butner, North Carolina. Completed in 2006, it was the first U.S. prison to receive Leadership in Energy and Environmental Design (LEED) certification. In accordance with LEED principles and standards, special attention was given to site selection, water and energy efficiency, materials and resources, and indoor environmental quality. Through the incorporation of waterless and water-efficient technology into the facility's design, water use has been reduced by 33 percent. It has also achieved a 30 percent reduction in design energy costs compared to

standard counterparts. During construction, a stringent construction waste management plan resulted in a reduction by over 70 percent in the amount of construction waste requiring disposal in local landfills.

In keeping with this commitment, the proposed facilities at USP Leavenworth would be designed to be energy-efficient, would use energy-conserving equipment and would conform to recently adopted Executive Orders, laws and rules governing energy conservation standards for new federal commercial and multi-family high-rise and low-rise residential buildings (10 CFR Parts 433, 434 and 435). These laws include: Executive Orders 13423 and 13514 as well as The Energy Independence and Security Act (P.L. 110-140, H.R. 6) and the Energy Policy Act (EPAct) of 2005, an energy policy law that consists mainly of provisions designed to increase energy efficiency and the availability of renewable energy.

Executive Order 13423 (*Strengthening Federal Environmental and Energy and Transportation Management)* requires that federal agencies reduce energy intensity by three percent each year, leading to 30 percent by the end of FY 2015 compared to an FY 2003 baseline. Under this order, federal agencies must ensure that at least half of all renewable energy required under the EPAct 2005 comes from new renewable sources (developed after January 1, 1999) and to the maximum extent possible, renewable energy generation projects should be implemented on agency property for agency use.

The goals of Executive Order 13514 (*Federal Leadership in Environmental, Energy and Economic Performance*) include the ability to increase energy efficiency; measure, report, and reduce greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which federal facilities are located; and inform federal employees about and involve them in the achievement of these goals.

To comply with these executive orders, laws and rules, the BOP will employ various measures during construction and operation of the proposed facilities including the following:

- Wall and roof insulation will be much higher than it is required by ASHRAE 90.1 due to requirement of 30 percent energy saving verses ASHRAE 90.1 baseline.
- Geothermal/Ground source cooling and heating for buildings outside the FCI secure compound if site conditions are favorable.
- Laundry Water Recycle System for all washers at the Main Laundry.
- Premium efficiency motors and VFDs.
- Lighting controls.
- Use of building materials with low or no VOCs including flooring, paints, sealants, and ceilings.
- Use of sustainable building materials such as polished concrete and resinous flooring.
- Use of materials that can easily be recycled such as linoleum sheet flooring and rubber floor tile.

- Use of Cool roofs.
- Use of low flow plumbing fixtures throughout the facility.
- Electronic shower control.
- Rain water harvesting for sanitary use and make-up water for cooling towers.
- Dryer Exhaust Heat Recovery System for all dryers at Main Laundry.
- Energy saving equipment for High Mast lighting system used at the FCIsecure compound.
- Total energy recovery wheel for Air Handling Unit with outdoor supply air of 70 percent or greater of the design supply air quantity.
- Use of Intelligent Hood Exhaust Control System for Food Service equipment.
- Designs are to provide and utilize renewable energy based on site location at a minimum of 7.5 percent of the total electrical energy consumption of the project if economically feasible and technically practicable.
- Solar Domestic Water Heating for all the buildings outside the FCI secure compound if life cycle proves cost-effective.
- Use of natural day lighting to reduce energy consumption.

1. Solid Waste

The federal government is one of the nation's largest generators of solid waste, and as such has undertaken steps to become a visible and active leader in addressing the solid waste dilemma and to engage in affirmative procurement practices to encourage the development of markets for products made from recycled materials. The proposed FCI and FPC would be designed and operated in the context of a comprehensive Environmental Awareness/Pollution Prevention Program in which:

- Efforts are made to procure items that promote recycling and/or reduce waste generation;
- A cost-effective recycling program is incorporated into the operational procedures of the proposed facility, including the recycling of cardboard, paper, plastic, metal, glass, used oils, solvents, lead acid batteries and other materials;
- Construction Contractor's recycling of jobsite waste and excess materials with local recycle programs to reduce the impact on landfills;
- Painting Contractors enrollment in state-implemented Paint Stewardship Programs to recycle wasted and unused paint products; and
- Other operational initiatives for energy conservation and waste reduction are routinely examined and implemented when appropriate.

In addition to the above measures, the BOP is investigating alternative/renewable energy methods appropriate for use at the new FCI. Renewable energy systems utilize the energy in natural resources without depleting them. The most widely recognized examples are: photovoltaics (PV), which convert sunlight into energy; geothermal systems which use the earth or groundwater as a heat source for heating or a heat sink for cooling; and wind turbines, which convert wind directly into electricity. Below is a summary of alternative energy sources which are being investigated for use at USP Leavenworth.

2. Photovoltaic Systems

Photovoltaics generate electrical power by converting solar radiation into direct current electricity using semiconductors and solar panels composed of solar cells containing silicone-based photovoltaic material. Since PVs contain no moving parts, produce no emissions or noise and are very durable and reliable, PV production worldwide has been doubling every two years, increasing by an average of 48 percent each year since 2002, making it the world's fastest-growing energy technology. The BOP's goal for the proposed FCI Leavenworth will be to generate 7.5 percent (or 900,000 KWh) of the estimated total electrical consumption (12 Million KWh) with PV by constructing a 1,000 KW ground mount, fixed tilt array, solar PV plant on approximately six acres of the project site. The BOP will evaluate renewable energy production by a solar PV plant to ensure that it is economically feasible and technically practicable for use at the proposed FCI as per EPAct 2005.

3. Wind Energy

Wind turbines and associated wind power plants harness the energy of naturally occurring wind and converts it into electricity. Wind Turbines, mounted on towers, catch the wind with propeller-like blades, causing them to turn. The turning rotors then drive a generator, which converts the resulting mechanical energy to usable electricity. Typically, the turbine is mounted on a tower in excess of 100 feet tall in order to take advantage of higher winds speeds and lower turbulence. Wind provides a clean, pollution free source of energy as an alternative to conventional, fossil-fuel driven generation.

Centrally located in the midwest, the state of Kansas is squarely placed in the center of the U.S. wind tunnel. According to the National Renewable Energy Laboratory, Kansas has high potential capacity for wind power. Consequently, the BOP is currently evaluating whether the USP Leavenworth property has available and consistent wind resources to effectively utilize wind power to offset a portion of the FCI's energy consumption. Current BOP estimates have indicated that a 500 KW wind turbine, with a hub at 80 meters, could produce 7.5 percent of the BOP's total estimated electrical consumption. The BOP will evaluate renewable energy production by use of wind turbines to ensure that it is economically feasible and technically practicable as per EPAct 2005. The BOP will take into consideration potential impacts to the view shed of historically significant USP Leavenworth.

4. Geothermal Ground Source Heat Exchange Systems

Based on the BOP's preliminary evaluations, the subsurface conditions on the Leavenworth property may lend themselves to the use of geothermal ground source heat exchange. This system involves an electrically powered heating and cooling system that utilizes the earth for both a heat source and a heat sink. Components of this system typically include a heat pump, a hydronic pump, a ground heat exchanger and a distribution subsystem. Geothermal energy has the smallest land use of any major power generation technology and, once in operation, geothermal plants are one of the most reliable of all energy production methods. A typical geothermal facility occupies about the same space as a gas

fired plant of the same capacity. Since they occupy the smallest space per kilowatt generated, it follows that they have the least visual impact of any power generation technology available.

The BOP will evaluate the geothermal properties of the site as they relate to ground temperature and heat conductivity at depth, to ascertain whether the depth would be viable for a geothermal loop. The BOP's goal will be to use a geothermal heating and cooling system for the buildings to be located outside the FCI's secure compound to save installation and operational costs if site conditions are preferable. This evaluation would include the impacts of seismic activities on the geothermal heat loop materials.

5. Rainwater Harvesting

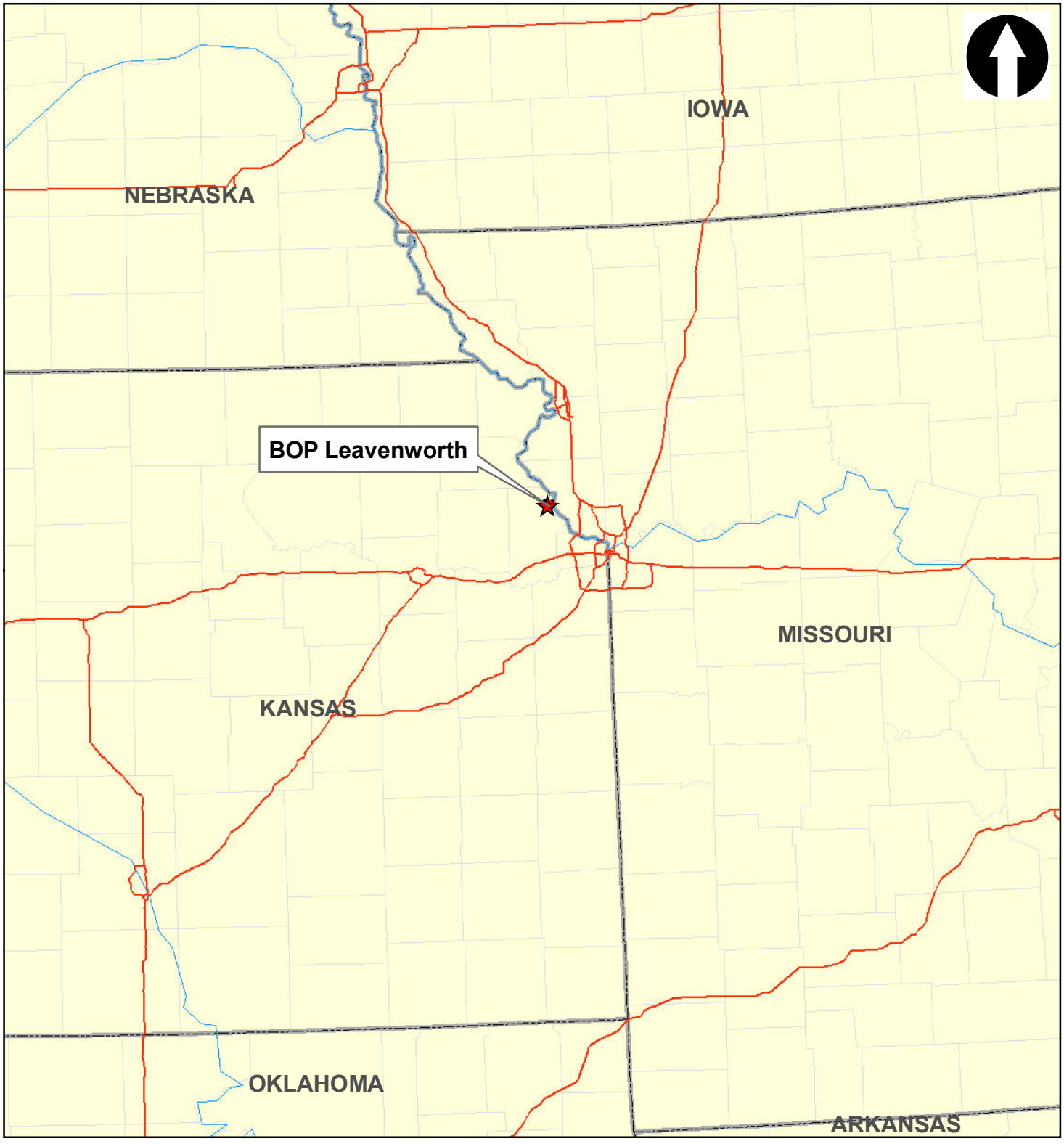
Rainwater harvesting includes collecting and storing precipitation and the runoff from precipitation for later use. This consists of a more direct approach to capturing precipitation than waiting for it to percolate into aquifers and then pumping it out, or than diverting water from streams. Rainwater harvesting for nondomestic, large uses (including the proposed project) requires a state of Kansas water appropriation permit, subject to safe-yield requirements and availability after prior appropriations. To conserve natural resources, the BOP is currently evaluating the possibility of rainwater harvesting as part of the proposed project. The BOP is considering the use of rainwater harvesting only for areas with higher potential for water-saving opportunities in a cost-effective manner, such as camp housing and cooling tower water make-up.

G. ENVIRONMENTAL JUSTICE CONSIDERATIONS

As required by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, February 11, 1996, environmental justice must be considered in the development of any federally-funded project. Executive Order 12898 stipulates that each federal agency,"*to the greatest extent practicable"* should identify and address, as appropriate,"*disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States…*" The Executive Order embodies Title VI of the Civil Rights Act of 1964 and incorporates Title VI provisions into the planning and environmental processes.

To address environmental justice issues prior to initiating this document, the BOP held well-attended meetings in late November and early December, 2010 to inform key community leaders about the proposed project and to solicit advice and input from give local, county, state, and federal agencies, officials and organizations. The analysis completed in the preparation of this document takes into account those comments and the economic, population and housing characteristics of the region surrounding the proposed project site at USP Leavenworth (see Chapter III). Potential impacts, including socioeconomic impacts, are also reported in this document and include potential impacts of the proposed project on minority and low-income populations.

Potential impacts to the economic, population, and housing characteristics of the host community and surrounding area have been assessed during preparation of this Draft EIS. The project will generate potential short- and long-term benefits to the host community and surrounding region such as increased revenue to minority and small businesses, wholesale and retail sales opportunities, increased economic development, and job opportunities. Based on these factors, the project complies with Executive Order 12898. The analysis of potential socioeconomic impacts on minority and low-income populations are included in this document and have been given full consideration by the BOP prior to making a final decision on the proposed action.



Source: ESRI 2010.

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Federal Bureau of Prisons

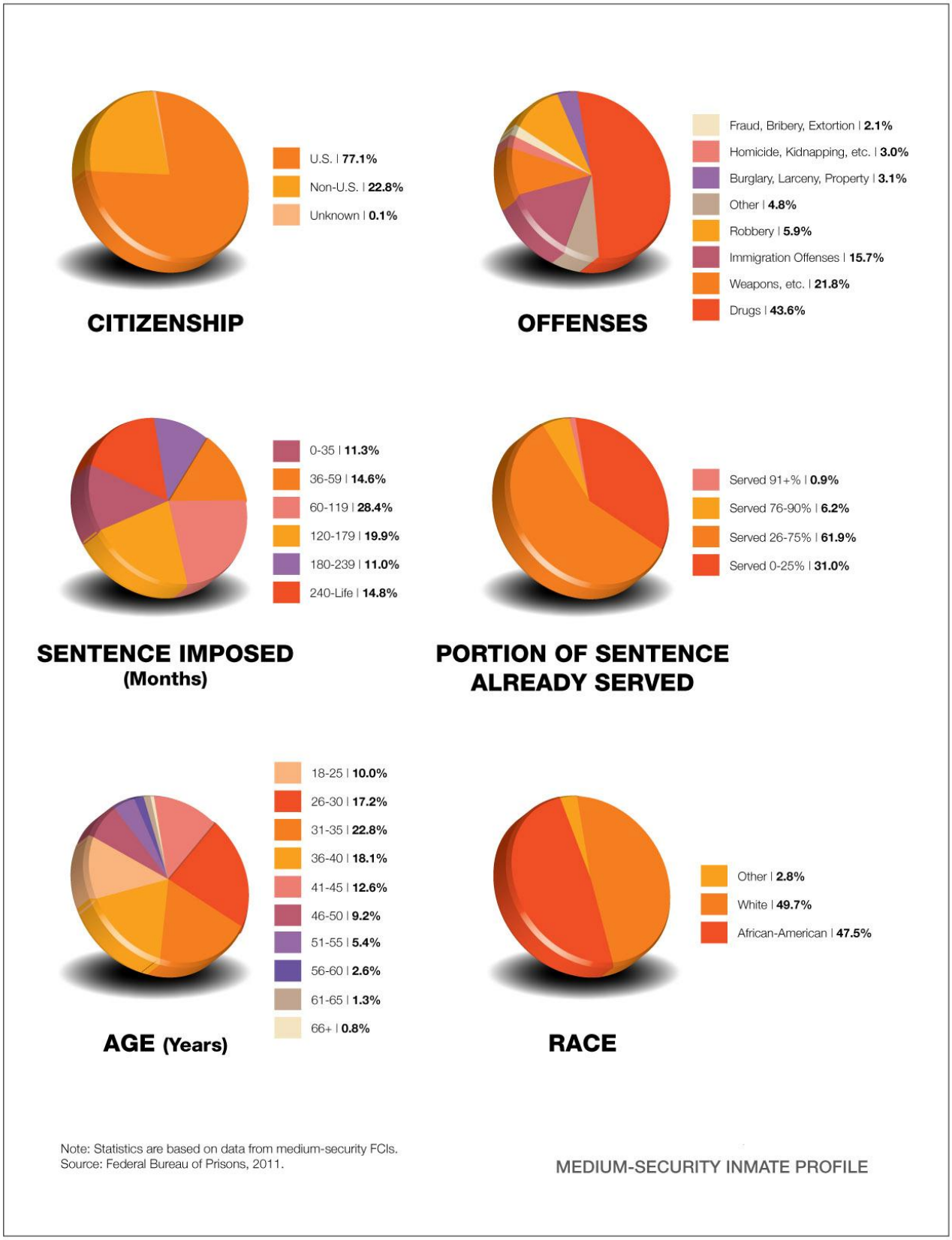
Proposed FCI and FPC
USP Leavenworth

Regional Location Map

The Louis Berger Group, Inc.

Exhibit I-1

EXHIBIT I-2 MEDIUM SECURITY INMATE PROFILE



II. ALTERNATIVES

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A. INTRODUCTION TO THE ALTERNATIVES ANALYSIS

Council on Environmental Quality (CEQ) guidelines (40 CFR 1502) require an analysis of alternatives based *"on the information and analysis presented in the sections on the Affected Environment (40 CFR 1502.15) and the Environmental Consequences (40 CFR 1502.16)."* The guidelines state that the analysis *"should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice."* The guidelines further state that the alternatives analysis is required to:

- *"Include the alternative of no action"*;
- *"...explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated"*;
- *"Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits"*;
- *"Include reasonable alternatives not within the jurisdiction of the lead agency"*;
- *"Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference"*; and
- *"Include appropriate mitigation measures not already included in the proposed action or alternatives."*

The analysis conducted under these guidelines address the following alternatives:

- **No Action Alternative.** A decision not to proceed with the proposed action to develop a new FCI and FPC.
- **Alternative Locations.** Locations other than Leavenworth, Kansas for implementation of the proposed action and warranting only a brief explanation of the reasons for elimination.
- **Action Alternatives.** Alternative building locations within the grounds of USP Leavenworth which best meet BOP requirements for development while minimizing potential adverse environmental impacts.
- **Preferred Alternative.** The alternative preferred by the BOP for implementation of the proposed action.

To the extent that reasonable alternatives which fulfill the purpose and need of the BOP for additional facilities serving the BOP's North Central Region (NCR) may be found at one or more sites already within the jurisdiction of the BOP, limitation of the reasonable alternatives to such sites would be in the best interest of the BOP. By locating the proposed FCI/FPC at an existing BOP site, the proposed action,

based on the Federal Correctional Complex model that the BOP has successfully implemented at other sites within its jurisdiction, would achieve economies of scale that include maximizing efficiencies and minimizing administrative, staffing, and other resource needs/expenditures. In the current climate of very limited federal resources, if USP Leavenworth or another site already acquired and within the jurisdiction of the BOP is feasible for the proposed action, elimination of alternative sites not within the BOP's jurisdiction is believed to be reasonable and also in the best interest of the BOP, the federal government, and the public at large.

A discussion of these alternatives follows.

B. NO ACTION ALTERNATIVE

The No Action Alternative is defined as a decision by the BOP not to proceed with the proposed action. This alternative would preclude the opportunity to develop and operate a new FCI and FPC to house a portion of the federal inmate population and would result in a continuation of the status quo.

Adoption of the No Action Alternative would avoid the potential impacts and inconveniences (albeit temporary) associated with construction of the proposed FCI and FPC such as increased noise, dust, soil erosion, energy consumption, traffic volumes and air emissions. Implementation of the No Action Alternative would also avoid the potential permanent impacts to land use, cultural and biological resources, utility services, visual and aesthetic resources, and traffic and transportation movements associated with FCI and FPC operation. Based on many years of experience developing new correctional institutions of a similar nature and scale throughout the country, the BOP anticipates that potentially significant adverse impacts from FCI and FPC construction and operation can and would be avoided and that none of the potential impacts associated with facility construction and operation, properly mitigated, would constitute significant adverse impacts as defined by NEPA.

While the No Action Alternative would avoid the potential impacts associated with development and operation of the proposed FCI and FPC, adoption of this alternative would also result in the loss of the many positive benefits associated with the proposed action. These benefits include contributing to achieving the mandates of Congress; provision of additional capacity to house federal inmates; the societal benefits derived from efficient operation of the federal criminal justice system; along with the potential economic and employment opportunities which would become available to the residents and businesses in eastern Kansas and western Missouri as a consequence of construction and operation of the FCI and FPC.

The No Action Alternative, by definition, does not meet the purpose and need for the proposed action and, therefore, does not address the BOP's need to house the growing federal inmate population. Nonetheless, in order to compare and contrast the potential impacts of the proposed action, the No Action Alternative has been carried forward and discussed in Chapter III of the EIS.

C. ALTERNATIVE PROJECT LOCATIONS

The term "alternative project locations" refers to locations in parts of the country other than that proposed. Locations of new federal prison facilities are determined by the demand for incarceration in various parts of the country and the resources available to meet that demand. As described in Chapter I, the federal inmate population has increased significantly in recent years and currently exceeds the capacity of the BOP's 117 correctional institutions. In response, the BOP has undertaken various

measures to manage inmate population growth including acquisition of surplus facilities, the expansion and improvement of existing facilities, and the use of contractor-owned/contractor-operated facilities. In the face of the continuing increase in the federal prison population, the BOP also increases capacity through construction of new institutions.

In the process of initial identification, sites are screened for factors which, if present, would either preclude use for BOP purposes (e.g., excessive acquisition costs, steeply sloping terrain, inability to provide adequate water supply or wastewater treatment at reasonable costs, flood hazards, etc.), or determine the general categories of facilities for which a site may be appropriate. Prospective sites which successfully complete this initial screening process are then more rigorously evaluated against established criteria including optimal infrastructure and environmental requirements. The general criteria applied in this process have been established by the BOP and are supplemented as necessary during follow-up investigations to ensure that all issues or potential issues are adequately addressed. Candidate sites which appear suitable on the basis of these initial investigations are then subjected to analysis in greater depth and documented in the form of EAs or EISs as appropriate. The analysis becomes progressively more detailed at each step in the process, leading to in-depth, comprehensive documentation in compliance with NEPA and other environmental laws and regulations.

As noted earlier, the BOP is facing an especially challenging situation in that the number of inmates originating from the north-central region of the United States has grown substantially. Currently, there are no federal correctional facilities in North Dakota, Nebraska, and Iowa and only one facility operating in South Dakota (FPC Yankton), Michigan (FCI Milan), Wisconsin (FCI Oxford), Missouri (USMCFP Springfield), and Kansas (USP Leavenworth). As a result, the BOP houses many inmates who originate from the north-central United States in facilities throughout the North Central Region and beyond. Provision of additional bedspace in Leavenworth, Kansas would allow the BOP to house inmates originating from north-central states nearer to their family and friends which aids in the rehabilitative process.

In planning the development of a new federal correctional facility in the north-central United States, consideration has been given to use of BOP-owned lands and facilities at FPC Yankton, FCI Milan, FCI Oxford, and USMCFP Springfield. Use of any of these properties has been eliminated from further consideration due to limitations on available land, infrastructure and/or other resources needed to accommodate development of a new FCI and FPC.

The BOP is proceeding with similar in-depth investigations in areas of the country in which it has projected a need for additional bedspace capacity as a part of an overall geographically-balanced program to alleviate crowding and fulfill its mandate. Actions in other communities outside the North Central Region, however, are considered to be in addition to the proposed action rather than true alternatives in lieu of action at existing USP Leavenworth, Kansas. Therefore, the disadvantage of failing to act at USP Leavenworth is considered to be essentially the same as the No Action Alternative. Accordingly, the BOP decided that it should proceed with the evaluation of potential development sites at USP Leavenworth to determine the degree to which such sites satisfy the established criteria and avoid significant adverse environmental consequences. Additional searches for alternative sites in other communities, in the absence of in-depth analysis of potential development sites at USP Leavenworth, would be neither prudent nor in the best interest of the public.

D. ALTERNATIVE PROJECT LOCATIONS WITHIN THE USP LEAVENWORTH PROPERTY

The BOP's property holdings in the Leavenworth area consist of two separate tracts: a 754-acre parcel comprising USP Leavenworth located north of the City of Leavenworth, Kansas as well as an approximately 1,320-acre parcel located approximately five miles from the USP and bordering the east bank of the Missouri River within the State of Missouri. The 1,320-acre parcel in Missouri is currently vacant and located within the Missouri River floodplain. Given its isolated location and propensity to be flooded, the 1,320-acre parcel in Missouri was eliminated from further consideration.

Consideration has been given to alternative locations at the 754-acre USP property in planning for the proposed project. The southern portion of the USP Leavenworth property, bordered by Metropolitan Avenue, has already been developed with the USP, minimum-security satellite prison camp, warehouses, staff housing, internal roadways, parking areas and other ancillary support facilities and much of this area has been eliminated from consideration. In addition, the area located directly north of the USP was eliminated early in the process due to its limited land area and the resulting inability to satisfy critical BOP requirements involving security zones and setbacks from structures, property lines, etc. necessary for FCI and FPC development and operation. Past land use practices in this area also contributed to its elimination.

Of the remainder of the property, two alternative sites located east and west of the existing USP are under consideration for development. The first alternative site, known as the East Site, consists of approximately 227 acres of primarily undeveloped land situated east of the USP and north of Metropolitan Avenue, west of Grant Avenue, and south of Corral Creek (Exhibit II-1). The second alternative site, described as the West Site, comprises approximately 144 acres and is located west of the USP. The West Site includes the minimum-security satellite prison camp and is generally bounded by Metropolitan Avenue on the south, Santa Fe Trail on the west, and an abandoned railroad grade on the north. Together, the two alternative sites comprise approximately 371 acres of land.

1. Alternative FCI and FPC Development Concept Plans

The BOP has conducted detailed studies of alternative sites within the largely undeveloped portions of the USP Leavenworth property for FCI and FPC development with due consideration to the:

- Relationship to existing BOP facilities, operations and infrastructure;
- Topographic conditions and soil characteristics;
- Potential hazardous waste disposal areas;
- Locations of drainage and water features;
- Proximity to neighboring properties and land uses;
- Wetlands, tree stands and wildlife habitats;
- Utility services including underground and overhead utility lines and easements; and

- Motor vehicle access.

On the basis of the analysis, alternative site development concept plans for the proposed FCI and FPC were prepared in order to establish facility configurations, locations and orientations including the placement of inmate housing, administration spaces, utilities, recreational areas, warehouse locations, internal access roads and parking areas, and other ancillary development. (The alternative site development concept plans are provided in Appendix C.) This effort also served to avoid sensitive environmental features (or constraints) where possible while minimizing the potential costs and operational disruptions associated with the proposed development. The alternative site development concept plans prepared for the East and West Sites also utilized BOP design, security and operational requirements for federal correctional facilities, together with significant land development factors including:

- Limiting disturbance to existing underground natural gas mains and overhead electrical lines which bisect various areas of the property;
- Minimizing impacts to historic and cultural resources represented by the USP Leavenworth Historic District and other structures comprising the overall development;
- Limiting temporary and permanent impacts to streams, ponds and wetlands;
- Minimizing earthwork and other site preparation requirements to achieve properly placed and level building surfaces;
- Limiting disruptions to daily facility operations resulting from FCI and FPC construction activities;
- Developing safe and convenient pedestrian and motor access routes from the existing internal roadway system to the new facilities; and
- Adherence to BOP guidelines and standards involving security zones and setbacks from public roadways, structures, property lines, buffer areas, etc.

The conceptual site development alternatives for both the East Site and West Site reflect refinements in building locations, orientations and configurations to achieve a balance between BOP operational and security requirements and the need to minimize potential environmental impacts, development costs, etc. The progression of alternative site plans served to incorporate favorable components derived from initial, less desirable plans as determined by the screening analysis. In this way, alternative development plans systematically evolved to produce an overall site development plan which incorporates the best features of each development plan and is considered the Preferred Alternative.

2. Alternative Development Plan: East-1

Alternative Development Plan East-1 orients the FCI building footprint so that the main entrance is facing southwest towards the primary access road while accommodating all necessary FCI elements including employee and visitor parking areas; inmate housing; administration building; indoor and outdoor recreation areas; education and vocational training spaces; medical and dining facilities, among other components. This development plan also includes a central utility plant, warehouse and/or garage, and landscape and other maintenance facilities (as may be necessary) to be located southeast of the FCI. The proposed FPC would be located directly south of the FCI and would be accessible via the FCI

access road which connects with Metropolitan Avenue east of the existing USP. A new entrance road accessing both the FCI and FPC would be sited on Metropolitan Avenue, creating a full intersection with North 10th Street. Unique features and characteristics of this development plan are summarized below:

- Alternative Development Plan East-1 meets all critical BOP security and operational requirements involving security zones and setbacks from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- Several jurisdictional features would be impacted, including diversion of a stream to the south of the FCI facility, with overall impacts totaling approximately 3.63 acres of wetlands; including approximately 3,510 linear feet of stream.

- Implementation of this plan requires relocation of approximately 6,500 linear feet of overhead electrical line easement, however, the natural the gas line which extends through the center of the site would not be affected.

- A portion of Alternative Development Plan East-1 would involve construction over a known hazardous material disposal site.

- The majority of the historic BOP staff housing units fronting on the USP residential circle near Metropolitan Avenue (contributing features to the NHRP-eligible USP Leavenworth Historic District) would require demolition, and two potentially NRHP-eligible archaeological sites would also be impacted.

The principal environmental and infrastructure impacts of Alternative Development Plan East-1 are summarized in the matrix represented by Table II-1.

3. Alternative Development Plan: East-2

Alternative Development Plan East-2 orients the FCI building footprint so that the main entrance is facing west towards the northeastern corner of the USP while accommodating all necessary FCI elements including employee and visitor parking areas; inmate housing; administration building; indoor and outdoor recreation areas; education and vocational training spaces; medical and dining facilities, among other components. This development plan also includes a central utility plant, warehouse and/or garage, and landscape and other maintenance facilities (as may be necessary) to be located southeast of the FCI. The proposed FPC would be located directly south of the proposed FCI and directly east of the existing USP and would be accessible via the FCI access road which connects with Metropolitan Avenue east of the existing USP. Similarly to Alternative Development Plan East-1, the new entrance road accessing both the FCI and FPC would be sited on Metropolitan Avenue creating a full intersection at North 10th Street. Unique features and characteristics of this development plan are summarized below:

- Alternative Development Plan East-2 meets all critical BOP security and operational requirements involving security zones and setbacks from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- Several jurisdictional features would be impacted, including diversion of a stream to the south of the FCI facility, with overall impacts totaling approximately 3.71 acres of wetlands; including 4,320 linear feet of stream.

- Implementation of this plan requires relocation of approximately 8,500 linear feet of overhead electrical line easement as well as 2,950 linear feet of low-pressure natural gas line which extends through the site.

- A portion of Alternative Development Plan East-2 would involve construction over a known hazardous material disposal site.

- Several historic BOP staff housing units fronting on Metropolitan Avenue (contributing features to the NHRP-eligible USP Leavenworth Historic District) would require demolition and two potentially NRHP-eligible archaeological sites would also be impacted.

The principal environmental and infrastructure impacts of this alternative development plan are summarized in the matrix represented by Table II-1.

4. Alternative Development Plan: East-3

Alternative Development Plan East-3 orients the FCI building footprint so that the main entrance is facing south towards Metropolitan Avenue while accommodating all necessary FCI elements including employee and visitor parking areas; inmate housing; administration building; indoor and outdoor recreation areas; education and vocational training spaces; medical and dining facilities, among other components. As with Alternative Development Plan East-1, the East-3 plan also includes a central utility plant, warehouse and/or garage, and landscape and other maintenance facilities (as may be necessary) to be located southeast of the FCI. The proposed FPC would be located directly south of the proposed FCI and directly east of the existing USP with a greater setback from Metropolitan Avenue. The FPC would be accessible via the FCI access road which connects with Metropolitan Avenue east of the existing USP. As with Alternative Development Plan East-1, the new main entrance road for the FCI and FPC would be sited on Metropolitan Avenue, forming an intersection with North 10th Street. Unique features and characteristics of this development plan are summarized below:

- Alternative Development Plan East-3 meets all critical BOP security and operational requirements involving security zones and setbacks from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- Several jurisdictional features would be impacted, including diversion of a stream to the south of the FCI facility, with overall impacts totaling approximately 5.85 acres of wetlands; including 4,320 linear feet of stream.

- Implementation of this plan requires relocation of approximately 9,200 linear feet of overhead electrical line easement as well as 3,340 linear feet of low-pressure natural the gas line which extends through the site.

- A portion of Alternative Development Plan East-3 would involve construction over known hazardous material disposal sites.

- A number of the historic BOP staff housing units fronting on Metropolitan Avenue (contributing features to the NHRP-eligible USP Leavenworth Historic District) would require demolition, and two potentially NRHP-eligible archaeological sites would also be impacted.

The principal environmental and infrastructure impacts of this alternative development plan are summarized in the matrix represented by Table II-1.

5. Alternative Development Plan: West-1

Alternative Development Plan West-1 orients the FCI building footprint so that the main entrance is facing west toward the Santa Fe Trail (the northern extension of N. 20th Street across from the new Metropolitan Avenue interchange) while accommodating all necessary FCI elements including employee and visitor parking areas; inmate housing; administration building; indoor and outdoor recreation areas; education and vocational training spaces; medical and dining facilities, among other components. As with other Alternative Development Plans, the West-1 plan also includes a central utility plant, warehouse and/or garage, and landscape and other maintenance facilities (as may be necessary) to be located southeast of the FCI and west of the USP. The proposed FPC would be located further west of the proposed FCI, closer to the new alignment of Santa Fe Trail. Overall, the FCI and FPC would be located on either side of the former right-of-way of Santa Fe Trail so that access to both facilities would be from a dedicated entrance to/from the newly realigned Santa Fe Trail.

Due to insufficient area within the West Site, proposed development of the FCI and FPC would violate critical BOP security and operational requirements including:

- Sub-standard security zones and setbacks (less than 300 feet) from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- Significant reduction in current inmate bedspace capacity (about 450) resulting from demolition of the existing minimum-security satellite prison camp.

On this basis, Alternative Development Plan West-1 was eliminated from further consideration. The principal environmental and infrastructure impacts of this alternative development plan are summarized in the matrix represented by Table II-1.

6. Alternative Development Plan: West-2

Alternative Development Plan West-2 orients the FCI building footprint so that the main entrance is facing north towards Fort Leavenworth while accommodating all necessary FCI elements including employee and visitor parking areas; inmate housing; administration building; indoor and outdoor recreation areas; education and vocational training spaces; medical and dining facilities, among other components. Alternative Development Plan West-2 also includes a central utility plant, warehouse and/or garage, and landscape and other maintenance facilities (as may be necessary) to be located west of the FCI and former right-of-way of Santa Fe Trail. The FPC would be located to the north of the FCI with both the FCI and FPC sharing an access drive leading from former right-of-way of Santa Fe Trail, before providing a combined access via a dedicated entrance to/from the newly realigned Santa Fe Trail.

Due to insufficient area within the West Site, proposed development of the FCI and FPC would violate critical BOP security and operational requirements including:

- Sub-standard security zones and setbacks (less than 300 feet) from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- Significant reduction in current inmate bedspace capacity (about 450) resulting from demolition of the existing minimum-security satellite prison camp. Such operational constraints would be further compounded by additional demolition of other USP-related warehouses and support structures.

On this basis, Alternative Development Plan West-2 was eliminated from further consideration. The principal environmental and infrastructure impacts of this alternative development plan are summarized in the matrix represented by Table II-1.

7. Alternative Development Plan: East/West Composite

During the preparation and analysis of the various conceptual development plans described above, it became apparent that attempting to locate all new facilities associated with the proposed FCI and FPC entirely within either the East Site or West Site was a difficult task. Doing so often produced development plans that were less than ideal from a security and operational standpoint as well as an environmental impact standpoint. While it is desirable to maintain a large undeveloped area within the USP Leavenworth property for future uses, to do so would produce development plans that had unsatisfactory outcomes.

As a result, the BOP examined an additional alternative development plan that provided for development within both the East Site and West Site. Such a plan, described hereinafter as the East/West Composite Alternative, would place the proposed FCI and the supporting central utility plant, warehouses and maintenance garages entirely within the East Site while placing the proposed FPC on the West Site and in proximity to the existing minimum-security prison camp. On the East Site, the newly proposed FCI-dedicated main entrance road would be sited on Metropolitan Avenue at North 10th Street. On the West Site, access to the FPC would be provided via the current internal roadway to the existing minimum-security satellite prison camp. The principal features of this alternative development plan are summarized as follows:

- The East/West Composite Alternative meets all critical BOP security and operational requirements involving security zones and setbacks from structures, property lines, etc. necessary for development and operation of a FCI and FPC.

- The East/West Composite Alternative avoids the need to demolish the existing minimum-security satellite camp thereby maintaining bedspace for an additional 450 minimum-security inmates.

- Several jurisdictional features would be impacted, including diversion of a stream to the south of the FCI facility, with overall impacts totaling approximately 3.9 acres of wetlands; including 3,245 linear feet of stream.

- Implementation of this plan requires relocation of 6,500 linear feet of overhead electrical line easement, however, the natural the gas line which extends through the center of the site would not be affected.

- While the East/West Composite development plan involves construction over a known hazardous material disposal site, the area affected by such development is minimized versus other alternatives.

- A small number of the historic BOP staff housing units fronting on Metropolitan Avenue (contributing features to the NHRP-eligible USP Leavenworth Historic District) would be demolished, and two potentially NRHP-eligible archaeological sites would also be impacted.

- With separate accesses to/from the proposed FCI and FPC (as provided via Metropolitan Avenue and Santa Fe Trail respectively), BOP-related traffic volumes and interactions with exiting traffic volumes on Metropolitan Avenue (US-73) are better distributed, thus lessening the likelihood for potential traffic impacts.

The principal environmental and infrastructure impacts of the East/West Composite Alternative development plan are summarized in the matrix represented by Table II-1.

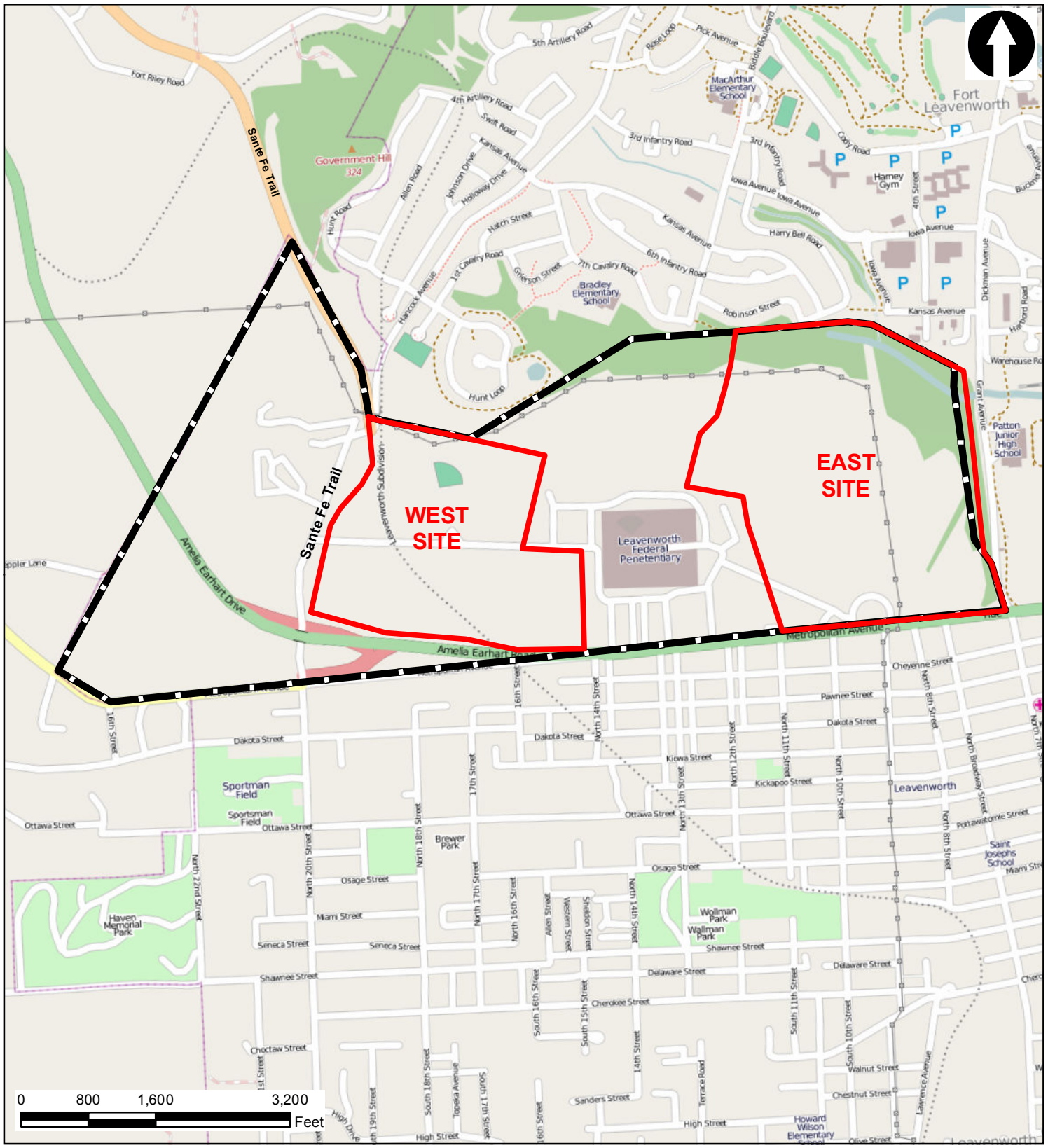
8. Conclusion

The Alternatives Analysis has assessed No Action and Action Alternatives pursuant to NEPA guidelines. Each conceptual development plan was assessed to determine whether the alternative met project objectives. If an alternative did not meet project objectives it was not advanced for further consideration. Each alternative was also assessed in terms of impacts to infrastructure and environmental resources including cultural resources, waste disposal areas, wetland and waters of the United States, overhead and underground utility systems among others. Avoidance, minimization, and reduction components were included in each scheme to reduce environmental and infrastructure impacts to the maximum extent practicable and feasible.

Each alternative plan was evaluated against security, operational, environmental and infrastructure criteria until a preferred alternative was identified that best met project objectives while accommodating security considerations, existing technology, logistics and costs. These criteria specified that the preferred alternative must meet project goals, demonstrate utility, and represent a reasonable and practicable alternative, taking into consideration cost, existing technology, and logistics, in light of project purposes. Alternatives were also evaluated to determine the environmental consequences associated with implementation.

Selection of the two alternative development plans for analysis in the Draft EIS was made following a review and analysis of all alternative plans; the two selected represent the best combination of BOP-preferred design, security, and operational features and the fewest environmental and other potential adverse impacts. For example, both the FCI East-1 and East/West Composite plans avoid demolition of the existing prison camp, thereby preserving over 450 minimum-security beds. Furthermore, both the FCI East-1 and East/West Composite plans avoid the challenges, potential impacts and costs associated with relocation of the natural gas transmission line. For these and similar reasons, the FCI East-1 and East/West Composite plans were selected for detailed analysis.

Each of the alternative development plans consist of similar concept designs that incorporate the necessary features of the FCI and FPC (i.e. inmate housing, administration buildings, recreation areas, etc.). However, the East/West Composite plan best meets the BOP operational and security requirements while minimizing potential environmental and other impacts and is considered to be the Preferred Alternative. The alternative FCI East-1 and East/West Composite development plans are included as Exhibits II-2 and II-3, and both alternative development plans are analyzed further in the remainder of the EIS.



Source: ESRI, 2011.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Areas

Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Street Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit II-1

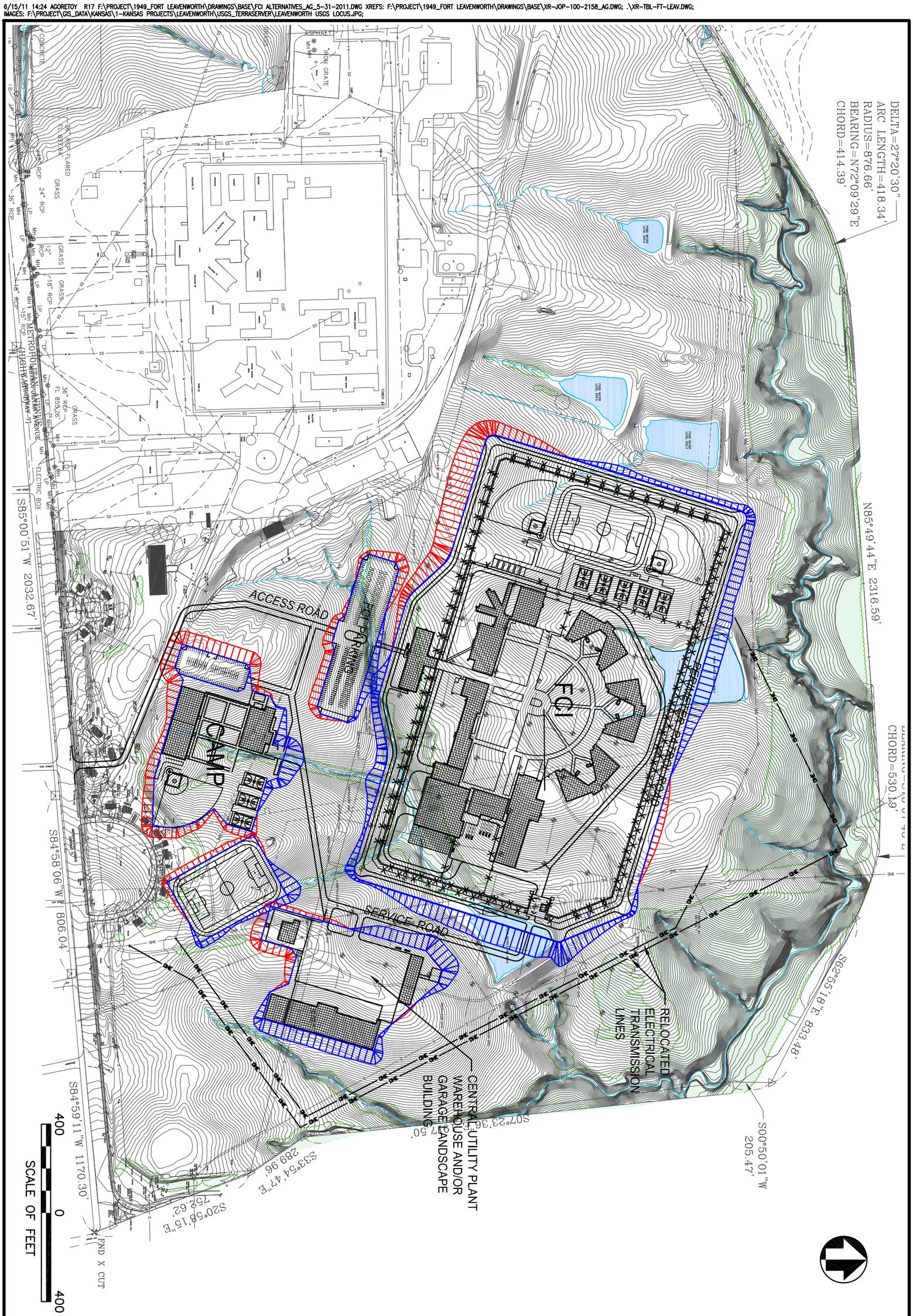
TABLE II-1 - SUMMARY COMPARISON OF IMPACT POTENTIAL OF ALTERNATIVE SITES
LEAVENWORTH, KANSAS

		EAST Site (only)			WEST Site (only)		Combination of WEST and EAST Sites
Alternative Site -->>							
Alternative Development Concept Plans -->>		**East 1**	**East 2**	**East 3**	**West 1**	**West 2**	**East/West Composite**
Land Area		227 acres			144 acres		371 acres
BOP's Key Security and Operational Requirements	Sufficient 300-ft Security Zone	In Compliance			In Violation		In Compliance
	Required Building Demolitions	Staff Housing (x11)	Staff Housing (x3)	Staff Housing (x3)	Existing minimum-security camp and USP warehouses		Staff Housing (x3)
	Access	Access to both FCI and FPC provided with newly dedicated driveway onto Metropolitan Avenue opposite N.10th Street.			Access to both FCI and FPC provided with newly dedicated driveway onto Santa Fe Trail. Demolition of existing service road and creation of a circuitous internal roadway (not desired) before connecting to Santa Fe Trail.		Access to FPC provided with newly dedicated driveway onto Metropolitan Avenue opposite N.10th Street. Access to FPC is provided via existing Service Road to Santa Fe Trail.
Key Biological Constraints	*Area of Impacted Wetlands (in acres)	*3.68 ac.*	*3.89 ac*	*4.9 ac*	*0.23 ac*	*0.25 ac*	*3.81 ac*
	*Area of Impacted Stream Tributaries (in linear feet)	*3,718 LF*	*4,889 LF*	*3,640 LF*	*1,837 LF*	*1,427 LF*	*4,118 LF*
Key Hazardous Waste Constraints	Potential Impacts to Known Contaminated Areas	Yes (only partial)			No		Yes (only partial)
	Potential Health Hazard Issues with Abestos Clean-Up	Unlikely			Likely (demolition of camp)		Unlikely
Key Utility Constraints	Overhead Electric (115KV & 34KV) Lines (Distance of Needed Relocation)	6,500 LF	8,500 LF	9,200 LF	--		6,500 LF
	Natural Gas Transmission Line (Distance of Needed Relocation)	--	2,950 LF	3,340 LF	--		--
Key Cultural Resources Constraints	Potential Impacts to NHRP-Eligible Archaeological Sites	Yes - Two Archeological Sites			Yes - Three Archaeological Sites		Yes - Two Archeological Sites
	Potential Impacts to NHRP-Eligible Architectural Historic District and Resources	Yes - Adverse visual impacts and demolition to contributing structures (staff housing only) .			Yes - Adverse visual impacts and demolition contributing structures (including existing minimum-security camp, USP warehouses).		Yes - Adverse visual impacts and demolition to contributing structures (staff housing only) .

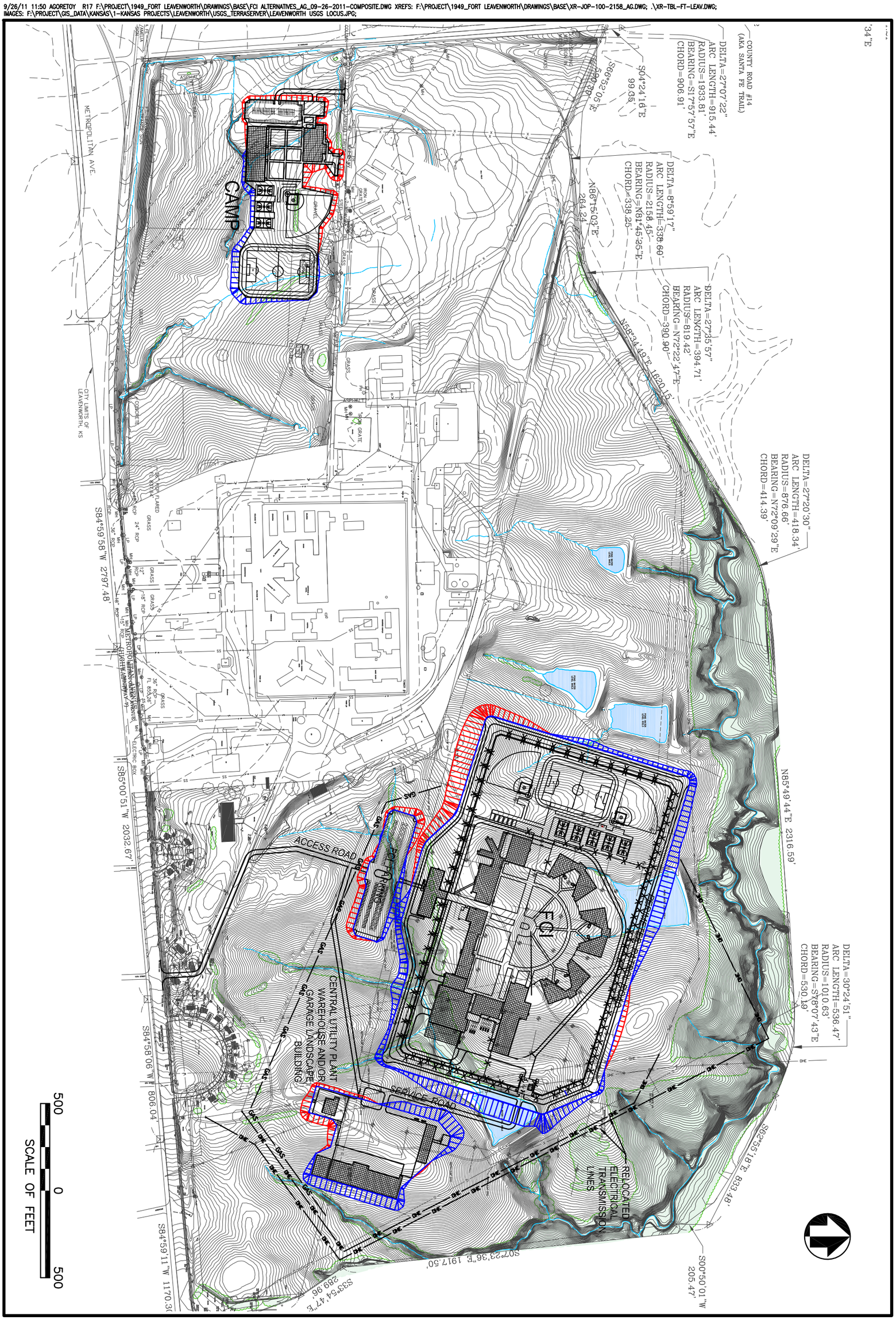
Notes:

***** Wetland and stream areas are subject to verification by the U.S. Army Corps of Engineers

"FCI" = Federal Correctional Institution
"FPC" = Federal Prison Camp
"LF" = linear foot
"SF" = square foot
"NHRP" = National Register of Historic Places



US Department of Justice Federal Bureau of Prisons The Louis Berger Group, Inc.	Proposed FCI USP Leavenworth, Kansas	Exhibit II-2 Alternative FCI EAST-1
	Source: KS GIS, LBG, Inc. | Scale: 1"=400' | May 2011	



US Department of Justice Federal Bureau of Prisons The Louis Berger Group, Inc.	Proposed FCI USP Leavenworth, Kansas		Exhibit II-3 Alternative EAST/WEST COMPOSITE
	Source: KS GIS, LBG, Inc.	Scale: 1"=400'	May 2011

III. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION

III. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION

A. INTRODUCTION

1. Existing Conditions

Implementation of the proposed action has the potential to affect various environmental resources found within the two alternative sites as well as resources which exist beyond the boundaries of the sites. This chapter examines specific environmental resources that have the potential to be affected by implementation of the proposed action. Both natural resources, including topographic features, geology and soils, hydrological and biological resources among others, as well as community resources such as social and economic factors, land use, utility services, and transportation networks, are addressed. Each resource description focuses on the relevant attributes and characteristics of that resource with the potential to be affected by the proposed action or that represent potential encumbrances to the proposed action.

2. Potential Impacts and Mitigation

NEPA regulations direct federal agencies to discuss any direct and/or indirect adverse environmental effects which cannot be avoided should the proposed action be implemented, and the means to mitigate adverse impacts if they occur. The NEPA regulations instruct federal agencies to consider both beneficial and adverse impacts of the proposed project in terms of public health, unique features of the geographic area, the precedential effect of the action, public opinion concerning the action, and the degree to which the impacts are uncertain. Mitigation measures are identified as those actions that would reduce or eliminate potential environmental impacts that could occur as a result of construction or operation of the proposed project. Mitigation, as defined by the NEPA regulations, includes:

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

The analyses which follow address the potential impacts associated with the development and operation of the proposed medium-security FCI designed to house approximately 1,500 inmates and the development and operation of a new FPC designed to house approximately 300 minimum-security inmates. Potential impacts and measures to mitigate potential adverse impacts associated with the proposed action are discussed under each topic.

B. TOPOGRAPHIC FEATURES

1. Existing Conditions

Leavenworth County lies within the Glaciated, Dissected Till Plains physiographic division of the central United States, an area of rolling hills formed by glacial drift deposited during the last two Ice Ages (Lauver 1989; McCauley 1998). The United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps depict the USP Leavenworth property at an average elevation of 860 feet above mean sea level (msl). (Exhibit III-1). The topography of the East Site generally consists of rolling hill slopes, some of which are moderately steep. Elevations on the East Site range from 825 to 890 feet above msl. The topography of the West Site is generally more level and the ground surface occurs at an average elevation of 860 feet above msl.

2. Potential Impacts and Mitigation

a. Potential Impacts

Construction of the proposed FCI/FPC under either the FCI East-1 or the Composite development scenario would require excavation and grading for building construction which would reshape topographic conditions. While the full extent of topographic alterations would be identified once a detailed site development plan is finalized, topographic conditions are such that moderate alterations would be necessary to provide the level building surfaces required for development. Additional re-grading activities or other topographic changes are not anticipated once FCI/FPC construction is completed.

b. Recommended Mitigation

To minimize potential adverse topographic impacts, the BOP would seek to locate the FCI and FPC building footprints, internal access roadway and parking area, utility corridors, and drainage facilities in a manner compatible with existing topography and drainage patterns. Doing so would serve to unify the architectural design of the FCI/FPC as well as the overall property while minimizing earth disturbance. Areas to be excavated, re-graded, or otherwise disturbed for FCI/FPC construction would be either built upon or stabilized and seeded. Where feasible, all re-grading and subsurface excavations would be performed using conventional equipment, however, the potential exists to utilize other means to carry out site preparation activities. Appropriate soil erosion and sediment control measures would be employed throughout the construction phase to minimize soil losses and similar short-term impacts resulting from site preparation and development activities. No other mitigating measures for topographic impacts are warranted.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at the USP property in Leavenworth. Therefore, impacts to topographic features and conditions would not occur and mitigation measures would not be required.

C. GEOLOGY

1. Existing Conditions

a. Geology

Geologic resources within the study areas consist of loess deposits underlain by residual clay soils and the Lawrence Shale Member. The Lawrence Shale Member is located within the Douglas Formation of the Pennsylvanian Series (KGS, March 2008: Butler 1991). The majority of the Lawrence Formation is comprised of gray shale and sandstone with minor red shale, coal, gray limestone and conglomerate. The thickness of this formation ranges from140 feet to 250 feet. The primary rock types associated with the Douglas formation are shale, sandstone, coal, limestone and conglomerates.

b. Seismicity

Based on historical earthquake locations and the recurrence rate of fault ruptures, the USGS has produced seismic hazard maps that show, by contours, earthquake ground motions that have a common probability of being exceeded in a specified time period under specific geological site conditions (USGS, 2006). The predicted maximum amount of earthquake-induced shaking with a two percent probability of being exceeded in 50 years is shown on this map. The ground motion is expressed as a percentage of the force of gravity (percent g) and is proportional to the hazard faced by a particular type of building. In general, little or no damage can be expected at values less than 10 percent g, moderate damage at 10 to 20 percent g, and major damage at values greater than 20 percent g. For example, Leavenworth County, including the proposed project study areas, is situated between contours ranging from 2 to 4 percent g. Thus, the potential for damage from seismic activity is not a serious concern for new developments in this region of Kansas (Exhibit III-2).

2. Potential Impacts and Mitigation

a. Potential Impacts

Geologic Features

Construction of the proposed FCI/FPC under either development scenario would require excavations for building footings and foundations, installation of internal access roads, underground utilities, stormwater management facilities, etc. As a result, minor adverse affects to subsurface conditions would be expected to occur under either development scenario. Disturbance of natural geologic features would be limited to only those areas where excavations for footings and foundations would occur. Construction activities associated with development are not expected to result in significant adverse impacts to pre-existing geologic features and conditions at the project site.

Seismic Hazards

Potential seismic hazards affecting the proposed project are discussed below.

- **Ground Shaking.** There is a low potential for the proposed project site to experience ground shaking. The intensity of the ground shaking is highly dependent upon a site's distance to a fault,

the magnitude of the earthquake and the soil conditions beneath the site. The proposed project site is located in an area of low seismic potential.

- **Primary Ground Rupture.** Primary ground rupture is ground deformation that occurs along the surface trace of the causative fault during an earthquake. The proposed project site is not known to be located on or near an active fault and, therefore, the site is not susceptible to primary ground rupture.

- **Liquefaction.** Liquefaction is defined as the transformation of a cohesionless (sandy) soil from a solid to a liquid state caused by an increase in pore pressure and a reduction in effective stress. It can occur when sandy soils are subjected to strong ground shaking. Because the site does not contain sandy soils, the potential for liquefaction is low.

- **Seismically-Induced Settlement and Differential Compaction.** Seismically-induced settlement and differential compaction occur when relatively soft or loose soils experience a reduction in strength caused by strong ground motion. Seismically-induced settlement is not likely to occur.

- **Other Phenomena.** Other phenomena include earthquake-induced flooding and tsunamis. Because the proposed project site is not located near or at elevations below any major lakes, dams, or other large surface water bodies, these phenomena are not likely to occur.

b. Recommended Mitigation

Alterations to geologic conditions resulting from development of the proposed facilities would not be expected to result in significant adverse impacts at the project site. Nonetheless, various subsurface engineering investigations and analyses would be undertaken prior to design and construction in order to ensure that appropriate design standards and sound building practices are implemented. No mitigating measures involving geologic conditions or features are warranted.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed at USP Leavenworth. Therefore, impacts to geologic features and conditions would not occur and mitigation measures would not be required.

D. SOILS

1. Existing Conditions

The *"Soil Survey for Leavenworth County, Kansas"* (U.S. Department of Agriculture (USDA), Natural Resources Conservation Service [NRCS], published in the Web Soil Survey was reviewed to identify soil types, descriptions and constraints associated with the proposed project site. The Web Soil Survey identifies seven soil mapping units on the project area (Exhibit III-3). Of the soils identified, none of the soils are listed as hydric (USDA NRCS 2011c). By definition, a hydric soil is one that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, July 13, 1994).

The Natural Resources Conservation Service (USDA NRCS 2011b) Web Soil Survey identifies the soils in the East Site as Sharpsburg silty clay loams, 1 to 8 percent slopes on the highest elevations and adjacent

hillsides. Ladoga silt loam, 3 to 8 percent slopes is present on the lower hill sides and Knox silt loam, 7 to 12 percent slopes is present in the areas of the ponds. Kennebec silt loams, occasionally and frequently flooded are present on floodplains along Corral Creek and Marshall silt loam, 5 to 9 percent slopes is present on the lower hill sides on the north side of Corral Creek. On the West Site the soil identified by the NRCS is Sharpsburg silty clay loams, 1 to 4 percent slopes in the north-western portion of the site and 4 to 8 percent slopes in the south-eastern portion of the site. Two small areas of Sharpsburg silty clay loams, 4 to 8 percent slopes occur along the west and northwest boundaries of the West Site. Soil characteristics are described below and summarized in Table III-1.

7050 - Kennebec Silt Loam, Occasionally Flooded
This moderately well drained, level soil of floodplains and river valleys comprises less than 1 percent of the proposed East Site. Soils of the Kennebec silt loam, occasionally flooded map unit are formed in alluvium. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is occasionally flooded but is not ponded. This soil is not identified as a hydric soil. Flood hazard, depth to water table, low strength, frost action, and shrink-swell potential are limitations if the Kennebec soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7051 - Kennnebec Silt Loam, Frequently Flooded
This moderately well drained, level soil of floodplains and river valley comprises approximately 8 percent of the proposed East Site. Soils of the Kennebec silt loam, frequently flooded map unit formed in alluvium. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is frequently flooded but is not ponded. This soil is not identified as a hydric soil. Flood hazard, depth to water table, low strength, frost action, and shrink-swell potential are limitations if the Kennebec soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7285 - Ladoga Silt Loam, 3 to 8 Percent Slopes
This moderately well drained, moderately sloping soil occurs on hillslopes on uplands and comprises approximately 16 percent of the proposed East Site. Soils of the Ladoga silt loam, 3 to 8 percent slopes map unit formed in silty and clayey loess. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded or ponded. This soil is not identified as a hydric soil. Low strength, frost action, shrink-swell potential, and slope are limitations if the Ladoga soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7291 - Marshall Silt Loam, 5 to 9 Percent Slopes
This well drained, moderately sloping soil occurs on hillslopes on uplands and comprises less than 1 percent of the proposed East Site. Soils of the Marshall silt loam, 5 to 9 percent slopes map unit formed in fine-silty loess. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink swell potential is moderate. This soil is not flooded or ponded. This soil is not identified as a hydric soil. Low strength, frost action, shrink-swell potential, and slope are limitations if the Marshall soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7540 - Sharpsburg Silty Clay Loam, 1 to 4 Percent Slopes
This moderately well drained, level soil occurs on hillslopes on uplands and comprises approximately 8 percent of the proposed East Site and 65 percent of the proposed West Site. Soils of the Sharpsburg silty clay loam, 1 to 4 percent slopes map unit formed in loess. Water movement in the most restrictive

TABLE III-1
SOIL CHARACTERISTICS

Map Unit	Limitations for Septic Tank Filter Fields	Limitations for Roadway Construction	Drainage	Depth to Seasonal High Water (Feet)	Limitations for Light Industry	Hydric Soil	Prime Farmland
7050 Kennebec Silt Loam Occasionally flooded	Very Limited; Flood Hazard; Depth to Water Table; Percs Moderately	Very Limited; Frost Action; Flood Hazard; Low Strength; Shrink-Swell Moderate	Moderately Well Drained	3-4	Very Limited; Flood Hazard; Shrink-Swell Moderate	No	Yes
7051 Kennnebec Silt Loam Frequently Flooded	Very Limited; Flood Hazard; Depth to Water Table; Percs Moderately	Very Limited; Frost Action; Flood Hazard; Low Strength; Shrink-Swell Moderate	Moderately Well Drained	3-4	Very Limited; Flood Hazard; Shrink-Swell Moderate	No	No
7285 Ladoga Silt Loam	Very Limited; Percs Slowly	Very Limited; Low Strength; Shrink-Swell High; Frost Action Moderate	Moderately Well Drained	>6	Very Limited; Shrink-Swell High; Somewhat Sloping	No	Yes
7291 Marshall Silt Loam	Somewhat Limited; Percs Moderately	Very Limited; Frost Action; Low Strength; Shrink-Swell Moderate to High	Well Drained	>6	Somewhat Limited; Shrink-Swell High; Sloping	No	Yes
7540 Sharpsburg Silty Clay Loam 1-4% slopes	Very Limited; Depth to Water Table; Percs Slowly	Very Limited; Shrink-Swell High; Low Strength; Frost Action Moderate	Moderately Well Drained	4	Very Limited; Shrink-Swell High	No	Yes
7542 Sharpsburg Silty Clay Loam 4-8% slopes	Very Limited; Depth to Water Table; Percs Slowly	Very Limited; Shrink-Swell High; Low Strength; Frost Action Moderate	Well Drained	4	Very Limited; Shrink-Swell High; Somewhat Sloping	No	Yes
7955 Knox Silt Loam	Somewhat Limited; Depth to Water Table; Moderately Sloping	Very Limited; Frost Action; Shrink Swell High; Moderately Sloping	Well Drained	>6	Very Limited; Shrink-Swell High; Sloping	No	Farmland of Statewide Importance

Sources: *Soil Survey of Leavenworth County, Kansas*. USDA-NRCS, 2011b.
Hydric Soils of the United States. USDA-NRCS, 2011c.

layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is high. This soil is not flooded or ponded. This soil is not identified as a hydric soil. Depth to water table, low strength, frost action, and shrink-swell potential are limitations if the Sharpsburg soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7542 - Sharpsburg Silty Clay Loam, 4 to 8 Percent Slopes, Eroded

This moderately well drained, moderately sloping soil occurs on hillslopes on uplands and comprises approximately 31 percent of the proposed East Site and 35 percent of the proposed West Site. Soils of the Sharpsburg silty clay loam, 4 to 8 percent slopes, eroded map unit formed in loess. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is high. Shrink-swell potential is high. This soil is not flooded or ponded. This soil is not identified as a hydric soil. Some small, isolated areas of the project area mapped with this unit are associated with wetlands. Depth to water table, low strength, frost action, shrink-swell potential, and slope are limitations if the Sharpsburg soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

7955 - Knox Silt Loam, 7 to 12 Percent Slopes

This well drained, moderately sloping soil occurs on hillslopes on uplands and comprises approximately 36 percent of the proposed East Site. Soils of the Knox silt loam, 7 to 12 percent slopes map unit formed in fin-silty loess. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is moderate. This soil is not flooded or ponded. This soil is not identified as a hydric soil. Some small, isolated areas of the project area mapped with this unit are associated with wetlands. Depth to water table, frost action, shrink-swell potential, and slope are limitations if the Knox soil is used as a site for sanitary facilities, roadway construction, or site development (USDA NRCS 2011b).

According to the *"Soil Survey for Leavenworth County, Kansas"*, some of the soil types occurring on the proposed site are considered prime farmland soils by the NRCS. The presence of prime farmland soil is a necessary component of prime farmland and is the primary indicator used to determine where potential prime farmland occurs. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. Kennebec silt loam (occasionally flooded), Ladoga silt loam (3 to 8 percent slopes), Marshall silt loam (5 to 9 percent slopes), and Sharpsburg silty clay loams (1 to 4 percent slopes and 4 to 8 percent slopes) are considered to be prime farmland soils. Knox silt loam (7 to 12 percent slopes) is considered farmland of statewide importance.

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. The intent of the Act is to minimize the extent to which federal programs contribute to the unnecessary or irreversible conversion of farmland to nonagricultural uses. The Act also ensures that federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland. The NRCS is responsible for overseeing compliance with the FPPA and has developed the rules and regulations for implementation of the Act (7 CFR Part 658, July 5, 1984).

The implementing procedures of the FPPA and NRCS require federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime and unique farmland, as well as farmland of

statewide and local importance, and to consider alternative actions that could avoid adverse effects. (Farmland of statewide importance is land that is not prime or unique but is considered of statewide importance for the production of food, feed, fiber, forage and oilseed crops while farmland of local importance has local significance for production of food, feed, fiber and forage.) Determining whether an area is considered prime or unique farmland and potential impacts associated with a proposed action is based on the outcome from preparation of the Farmland Conversion Impact Rating Form AD1006 for areas where prime farmland soils occur and by applying criteria established in the FPPA. Form AD1006 is currently under preparation.

2. Potential Impacts and Mitigation

a. Potential Impacts

Construction activities associated with site preparation (i.e., clearing, excavation, grading, etc.) at the proposed site would directly affect those native soils found within the limits of the construction zone surrounding the proposed FCI/FPC, as well as along internal access roads, utility corridors, stormwater management basins, etc. The large area of ground clearing and grading necessary to construct the FCI and the FPC at the existing USP Leavenworth property would expose soils to potential wind and water erosion. Therefore, some slight adverse effects to native soils would be expected during the FCI/FPC construction phase.

Activities for FCI/FPC construction typically require placement of considerable volumes of fill material to provide the level building surfaces and proper elevation required for development. Assuming the proposed FCI/FPC construction requires similar placement of fill material, native soils throughout the building zone would be altered as would other areas as the majority of fill material will originate on site. Long-term impacts would occur in those areas where soils would be excavated, compacted or covered by impervious surfaces such as buildings, internal roads, walkways, support structures, and parking lots.

While portions of the study areas were cultivated in the past, no agricultural activities are currently underway on either study area. Therefore, the proposed project should pose no significant adverse impact to agricultural activities. In accordance with the Farmland Protection Policy Act, preparation and submission of Form AD1006 is necessary to allow for impacts to prime farmland soils, however, the presence of prime farmland soils on the site will not preclude correctional facility development.

b. Recommended Mitigation

Under both development scenarios, prior to initiating construction of the FCI/FPC, detailed engineering studies would be conducted to ensure proper building layout and design. During these studies, particular attention would be directed toward erosion potential and engineering characteristics of the affected soils within the project site.

As a means to minimize potential adverse impacts to native soils and the erosion and sedimentation which can result from large-scale developments, the BOP would employ appropriate soil erosion and sedimentation control measures throughout the construction phase. Among the temporary soil erosion and sediment control measures to be considered for use during construction would be sediment basins, fabric (silt) fencing, inlet protection, stabilized construction entrances, etc. Among the permanent erosion control measures to be considered would be maintained lawns, landscaping, discharge pipe aprons, pipe outlet channels, and stormwater detention facilities. The BOP will employ such techniques to ensure compliance with all applicable regulations.

A soil erosion and sediment control plan would be prepared and implemented prior to, during, and after earth disturbance activities with a copy of the plan to be maintained at the project site throughout the period of construction. Temporary and permanent erosion control measures would also be inspected periodically and replaced or repaired as required. It would be the responsibility of the construction contractors, with appropriate oversight and monitoring by the BOP, to install and maintain temporary erosion and sedimentation pollution control measures such as those described below.

- **Construction Entrances**

A stabilized construction entrance would be installed at the project site and be inspected periodically during FCI/FPC construction. Additional stone would also be available so that the minimum dimensions can be maintained throughout each construction. The construction entrance to the FCI and FPC sites would be maintained to ensure that sediment from construction vehicles is not tracked onto internal BOP roadways and public thoroughfares.

- **Sediment Basins**

Sediment basins, if necessary and incorporated within the design plan for the FCI/FPC, would be inspected periodically during the construction phase. Sediment which accumulates within the basins would be removed when it reaches the clean-out elevation. Filters around riser pipes would also be maintained throughout each construction phase as would the dimensions of each basin.

- **Filter (Silt) Fences**

Filter fabric (silt) fences would be installed where and when appropriate during the construction phase, and following installation, would be inspected periodically. Sediment would be removed when the buildup reaches approximately one-half the height of the fence. Filter fabric fences that are damaged during construction would be replaced in-kind.

- **Swales and Berms**

Swales and berms, if utilized, would also be inspected periodically to ensure proper functioning. Proper berm heights and swale depths would also be maintained throughout the construction phase.

- **Inlet Protection**

Inlets would be inspected periodically during construction. Sediment accumulating around inlets would be removed when the build-up reaches approximately half the height of the inlet filter. Additional stone would be available so that the minimum dimensions can be maintained throughout the construction phase.

- **Other Measures**

During trenching or other excavation work, soil should be deposited on the upgrade side of the excavation wherever possible, in order to minimize soil migration from excavated areas. Soil preparation, fertilizing and temporary and permanent seeding should follow the construction phase as soon as practicable. If seasonal restrictions affect planting, exposed earth should be covered with hay, straw mulch, or other suitable protective covering. Additional measures will be considered including protecting slopes and channels, minimizing impervious surfaces and promoting infiltration where

possible, controlling the perimeter of the site during the construction phases, and minimizing the area and duration of exposed soils.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed within the existing Leavenworth USP property in Leavenworth, Kansas. As a result, impacts to native soils would not occur and mitigation measures would not be required.

E. WATER RESOURCES

1. Existing Conditions

a. Surface Water Resources

The project area is situated within the Missouri River Basin and the Independence-Sugar Watershed. The surface waters that drain the area consist of drainages and/or stormwater conveyances, ephemeral streams, intermittent streams, and one perennial stream (Table III-2).

There are 23 stormwater conveyances and/or drainages within the East and West Site study areas; with the majority of these features occurring on the East Site. Stormwater conveyances include swales, erosional features, ditches, or small washes that are characterized by low-flow volume as well as by infrequent and short duration flow (USACE, 2007). These conveyances typically have a variety of bed compositions ranging from silt, sand, and gravel to vegetation. Most of the conveyances have either a forested or herbaceous riparian buffer although several have a buffer of mowed grass. Most of the stormwater conveyances flow into intermittent tributaries or the perennial tributary in the northern portion of the East Site. One stormwater conveyance flows into an open water habitat (OW-2) which then drains to an ephemeral tributary. Several stormwater conveyances flow into the palustrine emergent wetlands and the palustrine scrub-shrub wetland on the East and West Sites. Most of the conveyances are natural drainages although several on the west site emerge from culverts before draining to tributaries. Drainages are non-jurisdictional by the USACE and therefore are not protected by Clean Water Act regulations.

A total of five ephemeral tributaries were identified within the East and West Site study areas, four of which were found on the East Site, one on the West Site. Within the northern portion of the East Site, one ephemeral tributary flow north-northeast to the confluence with Corral Creek which runs along the northern boundary of the USP Leavenworth property. The remaining ephemeral tributaries on the East Site drain into other water resources such as an intermittent tributary. For a small stretch immediately upstream of its confluence with Reach 2, Reach 4 seems to go underground. Most of these tributaries have a forested riparian buffer although two have a mix of forested and herbaceous vegetation. One ephemeral tributary was identified on the West Site that flows east or southeast exiting the site on the southern boundary. A portion of the tributary has been piped. The riparian buffer of the tributary consisted of herbaceous vegetation in the form of managed grassland or pastureland.

A total of two intermittent tributaries were identified within the East Site study area. The two intermittent tributaries flow mostly east and north and are direct or indirect tributaries of Corral Creek (perennial tributary Reach 1). Reach 2, in the central portion of the East Site, drains through a palustrine emergent wetland (PEM-3), into an open water area (OW-1), and through another palustrine emergent wetland (PEM-1) before draining into Corral Creek. At the time of the site visit, all of the intermittent

TABLE III-2
SURFACE WATERS DELINEATED WITHIN THE PROJECT AREA

Feature ID	Type of Feature	Length (linear feet)	Location
D-1	Stormwater Conveyance	58	East Site
D-2	Stormwater Conveyance	134	East Site
D-3	Stormwater Conveyance	59	East Site
D-4	Stormwater Conveyance	155	East Site
D-5	Stormwater Conveyance	116	East Site
D-6	Stormwater Conveyance	59	East Site
D-7	Stormwater Conveyance	141	East Site
D-8	Stormwater Conveyance	263	East Site
D-9	Stormwater Conveyance	254	East Site
D-10	Stormwater Conveyance	204	West Site
D-11	Stormwater Conveyance	443	West Site
D-12	Stormwater Conveyance	719	East Site
D-13	Stormwater Conveyance	154	East Site
D-14	Stormwater Conveyance	367	East Site
D-15	Stormwater Conveyance	271	East Site
D-16	Stormwater Conveyance	183	East Site
D-17	Stormwater Conveyance	34	East Site
D-18	Stormwater Conveyance	302	East Site
D-19	Stormwater Conveyance	252	East Site
D-20	Stormwater Conveyance	1,787	West Site
D-21	Stormwater Conveyance	1,125	West Site
D-22	Stormwater Conveyance	625	West Site
D-23	Stormwater Conveyance	1,351	West Site
Reach 1 (Corral Creek)	Perennial Tributary	3,644	East Site
Reach 2	Intermittent Tributary	3,172	East Site
Reach 3	Ephemeral Tributary	253	East Site
Reach 4	Ephemeral Tributary	926	East Site
Reach 5	Ephemeral Tributary	594	East Site
Reach 6	Ephemeral Tributary	520	East Site
Reach 7	Ephemeral Tributary	1,885	West Site
Reach 8	Intermittent Tributary	2,018	East Site
OW-1	Open Water	-	East Site
OW-2	Open Water	-	East Site
TOTAL		**22,068**	

Source: The Louis Berger Group, Inc., 2011.

tributaries were flowing. Groundwater was a suspected source of hydrology for portions of Reach 2. The riparian buffer of all tributaries consisted of forested vegetation.

Reach 1 (Corral Creek) is a meandering tributary with a silt, sand, gravel, cobble, and bedrock bed that is bounded by a forested riparian buffer. Drainage through the tributary comes from runoff from the

surrounding forested and agricultural land. The tributary flows east through the northern portion of the East Site and discharges offsite to the east into the Missouri River, approximately one mile from the project area.

In addition to the stormwater conveyances and ephemeral, intermittent, and perennial tributaries, there are two open water features within the East Site. These open water areas are the result of tributary impoundments and encompass a total of 2.90 acres of the East Site study area.

b. Floodplain Considerations

Both the East and West Site study areas contain drainages and intermittent and ephemeral tributaries to the Missouri River. The intermittent tributaries within the East Site generally flow towards the east. The tributaries within the West Site generally flow in a southeasterly direction. The West and East Sites, as well as the entire designated USP Leavenworth property area, are classified as flood hazard Zone X on the FEMA Flood Insurance Rate Map (FIRM) Number 20103C0129F with an effective date of August 18, 2009 (Exhibit III-4). Zone X (unshaded) is a flood insurance rate zone used for areas outside the 0.2-percent-annual-chance floodplain (500 Year Floodplain). No Base Flood Elevations (100 Year Elevations) or depths are shown in this zone, and insurance purchase is not required (Exhibit III-4).

c. Groundwater Resources

Previous investigations have shown the groundwater throughout the East and West Sites is close to the surface, with depth to groundwater typically within 10 feet beneath the surface. The direction of groundwater flow is variable across the sites although the topography generally determines flow direction. Within the West Site, the groundwater flows in an east-southeast direction towards Three Mile Creek which is south of and outside of the West Site boundary. Within the East Site, groundwater flow direction is variable. In the northern portion of the East Site, the groundwater generally flows north or northeast towards Corral Creek. In the southern portion of the East Site, groundwater typically flows east. The Missouri River alluvial aquifer is close to Leavenworth, Kansas however the walls of the aquifer end before the USP Leavenworth site boundary. Groundwater, likely collected from surficial runoff, is the suspected source of several of the intermittent tributaries that run through the property.

2. Potential Impacts and Mitigation

a. Potential Impacts

Development of the FCI/FPC under either alternative development plan would result in additional stormwater runoff resulting from the installation of impervious surfaces associated with construction of buildings, internal roadways, parking areas, walkways, etc. Development of the proposed FCI/FPC would result in the creation of large areas of impervious surfaces. The existing USP, as well as the proposed development, incorporates a combination of sheet flow over grassed areas, shallow concentrated flows in grassed waterways and shallow swales, and/or shallow concentrated flows over paved areas along curbs and gutters. Inclusion of grassed areas will increase the time of concentration compared to development without these stormwater management features, however, the inclusion of impervious area will more likely decrease the time of concentration compared to pre-development conditions.

To control stormwater runoff originating from the FCI/FPC, the BOP intends to incorporate a stormwater management system that would collect, store, and slowly release stormwater flows so as to avoid

adversely affecting downstream properties. In addition, a grading plan would be developed during the engineering design stage that would seek to maintain, to the degree feasible, the existing hydrologic drainage patterns and provide gentle slopes that are properly vegetated and stabilized. By doing so, runoff velocities would be maintained and the potential for soil erosion would be minimized. No additional hydrologic alterations are expected to occur once construction of the FCI/ FPC is completed.

The entire designated USP Leavenworth property area is classified as flood hazard Zone X on the FEMA Flood Insurance Rate Map (FIRM). Zone X is a flood insurance rate zone used for areas outside the 0.2-percent-annual-chance floodplain (500-Year Floodplain). No Base Flood Elevations (100-Year Elevations) or depths are shown in this zone, therefore no impacts to floodplains will occur.

Impacts to surface water features under the jurisdiction of the USACE are discussed in the Wetlands and Waters of the U.S. section.

b. Recommended Mitigation

As a result of amendments to the federal Clean Water Act, the USEPA adopted regulations that require permits for a number of stormwater discharges, including discharges associated with construction activities disturbing one or more acres of land and discharges associated with certain industrial activities. This definition does not include all industries that discharge stormwater; it only includes those expressly defined and included in the regulations.

The goal of the federal Stormwater Permit Program is to improve water quality by preventing pollutants from entering surface waters through stormwater discharges. The principal emphasis of this program is the use of source reduction and pollution minimization as the primary stormwater control techniques. The methods used for administering/implementing the permit program are based on the following objectives:

- Maximum use of pollution prevention and source controls to minimize or eliminate contact between rainfall and potential pollution sources; and

- Cooperative development of permit conditions with the appropriate regulatory authorities to ensure implementation of permit requirements.

In addition to those on site, the BOP will develop stormwater collection systems for use at the proposed FCI/FPC to control runoff by directing stormwaters into basins prior to discharge into receiving streams. Use of detention basins will serve a dual function: the basins would attenuate the intensity of the flow discharged to the receiving streams and rivers and allow for suspended solids in the stormwater to settle out prior to discharge. Vegetated or riprap-lined channels to reduce stream flow velocities and protect water quality will also be considered as may be appropriate to site conditions.

Recommendations contained in the USDA document entitled “Water Management and Sediment Control for Urbanizing Areas” would be considered in planning for stormwater management as would other USEPA stormwater guidance materials and measures required by applicable federal and State of Kansas regulations including use of appropriate best management practices in key locations; a grading plan that maintains the existing hydrologic drainage patterns where possible and provides for slopes that can be properly vegetated and stabilized; and sufficient and adequately designed discharge outfalls to avoid erosive point discharge conditions.

Hydraulic and hydrologic analyses would be performed to assess any possible runoff impacts and mitigation requirements prior to FCI/FPC construction. Other than implementing best management practices and avoiding/minimizing the disturbance and/or modification of drainageways and existing culverts and other stormwater control devices and facilities, additional mitigative measures do not appear warranted.

Mitigation regarding impacts to surface water features under the jurisdiction of the USACE is discussed in the Wetlands and Waters of the U.S. section.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed within the existing Leavenworth USP property in Leavenworth, Kansas. Hence, impacts to water resources and hydrologic features would not occur and mitigation measures would not be required.

F. BIOLOGICAL RESOURCES

1. Existing Conditions

Biological resources of the site have been determined through the use of agency contacts, available database inventories and maps, previous studies, and direct field observations. The utilized maps included USGS topographic maps and USDA aerial photographic maps. Dominant vegetative species were recorded. Vegetative communities, including wetlands, were examined for habitat types and size. Habitats were analyzed and compared to habitat requirements of species known to occur in the vicinity, including species of special status, to assess their potential for area use. Direct observations of wildlife and/or their sign were also recorded.

a. Vegetation

The majority of the project area and the surrounding vicinity is dominated by maintained fields and retired cropland. The vegetation on the East Site consists mainly of upland areas that are regularly mowed and maintained. Mostly pastureland herbaceous species were identified in these areas. The remaining land includes riparian corridors along one perennial tributary and the non-perennial tributaries with three palustrine emergent wetlands and one palustrine scrub-shrub wetland abutting and adjacent to the non-perennial tributaries. The palustrine emergent and scrub-shrub wetlands include predominantly hydrophytic herbaceous and shrub vegetation. The riparian corridors are dominated by white oak (*Quercus alba*), American elm (*Ulmus americana*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), sycamore (*Platanus occidentalis*), Osage orange (*Maclura pomifera*), grape species (*Vitis* spp.), and buckbrush (*Symphoricarpos orbiculatus*). The understory is mostly dominated by non-native shrub species including bush honeysuckle (*Lonicera mackii*) and multiflora rose (*Rosa multiflora*). The most significant riparian corridor is on the northern portion of the East Site adjacent to Corral Creek.

The vegetation on the West Site consists mostly of upland species. The majority of the stormwater conveyances and stream corridors are regularly mowed and maintained or are grazed by buffalo. Mostly herbaceous pastureland species were identified on the West Site. The remaining land includes narrow riparian corridors along the non-perennial tributary with two palustrine emergent wetlands located adjacent to this tributary in low lying drainage swales. The palustrine emergent wetlands include

predominantly hydrophytic herbaceous vegetation. Most of the upland areas within the West Site are mowed or grazed.

The vegetation in the grassland communities found on both the East and West Sites is dominated by mixed grasses and forbs including smooth brome (*Bromus inermis*), tall fescue (*Schedonorus phoenix*), yellow foxtail (*Setaria pumila*), white clover (*Trifolium repens*), little bluestem (*Schizachyrium scoparium*), and switchgrass (*Panicum virgatum*). A list of common upland vegetation species is provided in Table III-3.

TABLE III-3
UPLAND VEGETATION OBSERVED IN THE EAST AND WEST STUDY AREAS

Scientific Name	Common Name	Scientific Name	Common Name
Forbs			
Galium aparine	stickwilly	*Trifolium repens*	white clover
Lespedeza cuneata	sericea lespedeza	*Osmorhiza claytonii*	Clayton's sweetroot
Grasses, Sedges, and Rushes			
Bromus inermis	smooth brome	*Schedonorus phoenix*	tall fescue
Panicum virgatum	switchgrass	*Schizachyrium scoparium*	little bluestem
Trees, Shrubs, and Woody Vines			
Carya ovata	shagbark hickory	*Platanus occidentalis*	sycamore
Celtis occidentalis	common hackberry	*Populus deltoides*	plains cottonwood
Fraxinus americana	white ash	*Quercus alba*	white oak
Fraxinus pennsylvanica	green ash	*Quercus palustris*	pin oak
Juglans nigra	black walnut	*Rosa multiflora*	multiflora rose
Juniperus virginiana	eastern redcedar	*Symphoricarpos orbiculatus*	coralberry
Maclura pomifera	Osage orange	*Vitis* spp.	grape

b. Common Wildlife

Wildlife observed utilizing the both the East and West Sites during field surveys conducted in 2009 and in the week of March 21, 2011 included wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginiana*), and eastern gray squirrel (*Sciurus carolinensis*). Avian species observed include downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), northern cardinal (*Cardinalis cardinalis*), brown thrasher (*Toxostoma rufum*), killdeer, (*Charadrius vociferus),* canada goose (*Branta canadensis*), eastern bluebird (*Sialia sialis*), and mallard (*Anas platyrhynchos*). Raptor species observed flying over the site include the red-tailed hawk (*Buteo jamaicensis*). There were no aquatic species or reptiles and amphibians observed during the site visit in March 2011. According to the Kansas Department of Wildlife, Parks, and Tourism (KDWPT) other common wildlife that are likely to inhabit the East and West Sites include striped skunk (*Mephitis mephitis*), snakes, eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), cotton mouse, short-tailed shrew (*Blarina hylophaga*), white-footed deermouse (*Peromyscus leucopus*), woodland vole (*Microtus pinetorum*), eastern chipmunk (*Tamias striatus)*, and woodchuck (*Marmota monax*). Common birds not seen during field investigations that likely use the project area include tufted titmouse (*Baeolophus bicolor)*, wood thrush (*Hylocichla mustelina*), blue-gray gnatcatcher (*Polioptila caerulea*), Carolina wren (*Thryothorus ludovicianus*), summer tanager (*Piranga rubra)*, and warblers (*Dendroica* spp.) (KDWPT 2011).

The East Site is undeveloped and the habitat is predominantly maintained fields and some limited riparian forested and shrub areas on the northern and eastern boundaries. Wildlife species use the forested riparian area adjacent to Corral Creek on the East Site for cover and roosting, and some species are expected to use the open agricultural land for foraging. The West Site consists mainly of mowed grass areas through which various species of wildlife such as birds and small mammals such as rabbits and squirrels are likely to reside.

c. Wetlands and Waters of the U.S.

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3). Wetlands are identified by the use of three elements: hydrology, hydric soils, and vegetation. Dredge and fill activities in wetland areas are regulated through a permit program administered by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (33 CFR, Parts 320-329, November 13, 1986 and 33 CFR, Part 330, November 22, 1991).

As a first step in determining possible wetland locations, the USGS Leavenworth, Kansas 7.5-minute topographic map (USGS 2009); the *"Soil Survey of Leavenworth County, Kansas"* (USDA NRCS 2011b), NWI map for Leavenworth, Kansas (USDOI 2009) (Exhibit III-5), and aerial photography from the USDA National Agriculture Imagery Program (NAIP) were gathered and reviewed to determine the likelihood of jurisdictional wetlands on site. These data sources were used by LBG to assess the site for the possible presence of hydric soils, wetland areas as well as water conveyances including watercourses which may provide an indication of jurisdictional areas, or "waters of the United States".

The USGS topographic map indicates that there are three intermittent streams located within the project area. The northernmost stream, Corral Creek, flows east through the East Site study area and discharges offsite to the east into the Missouri River, located approximately one mile east of the USP Leavenworth property. The remaining streams on the East Site are headwater areas that drain east-southeast through the project area and eventually connect to the Missouri River. Although not indicated as blue-line streams on the USGS map, there are several areas that appear to contain smaller intermittent and ephemeral tributaries.

Following review of data sources, LBG conducted a wetland delineation of the East and West Sites. Wetlands were delineated in accordance with the procedures outlined in the USACE *Wetlands Delineation Manual* (USACE 1987). Wetlands, as defined in the manual are: *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted to life in saturated soil conditions."* Wetlands thus possess three characteristics: 1) hydric soils; 2) wetland hydrology; and 3) hydrophytic vegetation. The wetland delineation of the East and West Sites was performed the week of March 21, 2011, at a time of the year when the upper 18 inches of soil was not frozen and there was sufficient live and persistent vegetative cover to reasonably make a wetland determination.

The wetland delineation was performed to determine the federal jurisdictional boundaries of all wetlands, including waters of the U.S. (WOUS), identified within the project area. The boundaries of the wetlands were surveyed in the field by LBG biologists using a Trimble Geo XH Global Positioning System (GPS) unit. Data was also collected for manmade ditches or stormwater conveyances unless they expressed characteristics of wetlands (hydric soils, hydrophytic vegetation, and wetland hydrology).

Exhibits III-6a and III-6b show the locations of all jurisdictional aquatic resources observed on the East and West Sites, respectively.

The wetland investigation resulted in identification of a total of six wetland areas within the East and West Sites, consisting of two wetland classes. The wetland area cover type consisted of five palustrine emergent wetland communities and one palustrine scrub-shrub wetland community. Palustrine emergent wetlands include predominantly herbaceous vegetation. Palustrine scrub-shrub wetlands include a mixture of herbaceous plants with young trees and shrubs. A wetland that abuts a stream has no distinction between the immediate edge of the stream and the wetland itself. An adjacent wetland has a barrier between itself and the stream, but is connected by surface flow. There are two abutting wetlands and four adjacent wetlands on the project area (Table III-4).

TABLE III-4
WETLANDS DELINEATED WITHIN THE PROJECT AREA

Wetland	Cowardin Classification	Size (Acres)	Hydrologic Connection*
PEM-1	Palustrine Emergent Wetland	0.30	Abutting to Reach 2
PEM-2	Palustrine Emergent Wetland	0.21	Adjacent to Reach 3
PEM-3	Palustrine Emergent Wetland	0.40	Abutting to Reach 2
PEM-4	Palustrine Emergent Wetland	0.23	Adjacent to Reach 7
PEM-5	Palustrine Emergent Wetland	0.02	Adjacent to Reach 7
PSS-1	Palustrine Scrub-shrub Wetland	0.17	Adjacent to Reach 3
Total		**1.33**	

* Status as a jurisdictional feature is final based on the final jurisdictional determination provided by the USACE on September 21, 2011.

Four wetlands were identified within the East Site (PEM-1, PEM-2, PEM-3, and PSS-1). The vegetation in the palustrine emergent wetlands was predominantly hydrophytic, with a mixture of emergent wetland species. Soils displayed morphological features of a depleted matrix hydric soil indicator and numerous indicators of wetland hydrology were noted. The vegetation in the palustrine scrub-shrub wetland was predominantly hydrophytic, with a mixture of emergent, sapling, and shrub wetland species. Soils displayed morphological features of a depleted matrix hydric soil indicator and numerous indicators of wetland hydrology were noted. Two wetlands were identified within the West Site (PEM-4 and PEM-5). The vegetation was predominantly hydrophytic, with a mixture of emergent wetland species. Soils displayed morphological features of a depleted matrix hydric soil indicator and numerous indicators of wetland hydrology were noted. A list of wetland vegetation observed on-site is provided in Table III-5.

As described in the Water Resources section, in addition to jurisdictional wetlands, several different types of streams extend through the project area. These stream channels are under the jurisdiction of the USACE and are considered WOUS. Total jurisdictional WOUS observed on both the East and West Sites include eight riverine systems and two palustrine open water systems (Table III-6). The systems within the East Site tend to function primarily to convey water to Corral Creek and its tributaries while the system within the West Site conveys water to Three Mile Creek, located approximately one-third of a mile south of the project area. These streams are characterized by a well defined bed and bank with low velocity flowing waters. In some cases no water was flowing at the time of the delineation.

Four ephemeral streams, two intermittent streams, and one perennial stream were identified within the East Site and one ephemeral stream was identified within the West Site. The ephemeral streams on the

TABLE III-5
WETLAND VEGETATION OBSERVED IN THE STUDY AREA DURING FIELD INVESTIGATIONS

Scientific Name	Common Name	Indicator Status*	Scientific Name	Common Name	Indicator Status*
Forbs					
Alliaria petiolata	garlic mustard	FACW	*Polygonum penslyvanicum*	Pennsylvania knotweed	FACW
Galium aparine	stickwilly	FACU	*Ranunculus sceleratus*	cursed buttercup	OBL
Osmorhiza claytonii	Clayton's sweetroot	FACU	*Typha latifolia*	broadleaf cattail	OBL
Polygonum hydropiper	marshpepper knotweed	OBL			
Grasses, Sedges, and Rushes					
Cyperus esculentus	yellow nutsedge	FACW	*Leersia oryzoides*	rice cutgrass	OBL
Elymus virginicus	Virginia wildrye	FAC	*Phalaris arundinacea*	reed canarygrass	FACW
Equisetum hyemale	scouringrush horsetail	FACW	*Schoenoplectus fluviatilis*	river bulrush	OBL
Trees, Shrubs, and Woody Vines					
Acer negundo	box elder	FAC	*Salix amygdaloides*	peachleaf willow	FACW
Gleditsia triacanthos	honey locust	FAC-	*Ulmus americana*	American elm	FACW
Lonicera mackii	Amur honeysuckle	NL	*Vitis riparia*	riverbank grape	FAC

*Source: USDA Plants Database, 2011.

Key to indicator categories:

OBL: Obligate Wetland, occur almost always (estimated probability >99%) under natural conditions in wetlands.

FACW: Facultative Wetland, usually occur in wetlands (estimated probability 67%-99%), but occasionally found in nonwetlands.

FAC: Facultative, equally likely to occur in wetlands or nonwetlands (estimated probability 34%-66%).

FACU: Facultative Upland, usually occur in nonwetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

NL: Not listed

East and West Sites are characterized by a low gradient and a slow water velocity, standing water, and no flow. The substrate consists mainly of silt and sand with vegetative cover less than 15 percent. The ephemeral stream that occurs on the West Site is partially enclosed in a brick drainage pipe.

Intermittent and perennial streams that occur on the East Site have a high gradient compared to the ephemeral streams, where the velocity of the water is faster and there is very little developed floodplain with the exception of Corral Creek. The substrate of the streams identified within the East Site consists mostly of silt, sand, gravel, and cobble with bedrock noted in Corral Creek.

Two open water features were located on the East Site. Both of the open water features (OW-1 and OW-2) are impoundments of a stream and are jurisdictional WOUS.

TABLE III-6
LEAVENWORTH COUNTY THREATENED AND ENDANGERED SPECIES
AND SPECIES IN NEED OF CONSERVATION

Scientific Name	Common Name	Scientific Name	Common Name
Threatened and Endangered Species			
Avian			
Haliaeetus leucocephalus	bald eagle	*Charadrius melodus*	piping plover
Numenius borealis	eskimo curlew	*Charadrius alexandrinus*	snowy plover
Sterna antillarum	least tern		
Reptilian/Amphibian			
Storeria occipitomaculata	redbelly snake	*Virginia valeriae*	smooth earth snake
Mammalian			
Spilogale putorius	eastern spotted skunk		
Fish			
Ichthyomyzon castaneus	chestnut lamprey	*Macrhybopsis storeriana*	silver chub
Platygobio gracilis	flathead chub	*Notropis shumardi*	silverband shiner
Scaphirhynchus albus	pallid sturgeon	*Macrhybopsis gelida*	sturgeon chub
Macrhybopsis meeki	sicklefin chub	*Hybognathus argyritis*	western silvery minnow
Insect			
Nicrophorus americanus	American burying beetle		
Species in Need of Conservation			
Avian			
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Chlidonias niger	black tern	*Dendroica cerulea*	cerulean warbler
Dolichonyx oryzivorus	bobolink	*Camprimulgus vociferus*	whip-poor-will
Reptilian/Amphibian			
Crotalus horridus	timber rattlesnake		
Mammalian			
Spermophilus franklinii	Franklin's ground squirrel	*Glaucomys volans*	southern flying squirrel
Synaptomys cooperi	southern bog lemming		
Fish			
Cycleptus elongatus	blue sucker	*Hybognathus placitus*	plains minnow
Hybognathus hankinsoni	brassy minnow	*Notropis blennius*	river shiner
Carpiodes velifer	highfin carpsucker		

Wetlands and WOUS delineated in the field were subject to verification by the USACE. The final Jurisdictional Verification Request report was submitted to the USACE on August 16, 2011 after which the USACE conducted a desktop analysis to confirm the location of the jurisdictional wetlands and other WOUS. An Approved Jurisdictional Determination for the East and West Study Sites was provided by the USACE on September 21, 2011. A copy of the complete Wetland Delineation Report and the USACE Approved Jurisdictional Determination is provided in Appendix E.

d. Species of Special Status

Large-scale development activities are often performed in consultation with the USFWS in compliance with Section 7 of the Endangered Species Act and with state wildlife agency officials. Special status vegetation and wildlife species are of particular concern given the challenges associated with development in or near such habitats.

To determine whether development of the project area has the potential to impact any listed species and their habitats, The Louis Berger Group, Inc. (LBG) contacted the USFWS (Kansas Ecological Services Field Office) and the KDWPT to acquire site specific information relative to rare species with the potential to occur on or near the project area. LBG also reviewed available data sources for county-specific information as well as published environmental survey reports prepared for projects located in proximity to the area. Information provided by the USFWS on May 27, 2011 indicates that one federally listed species may occur on the alternative East and West Sites: western prairie fringed orchid (*Platanthera praeclara*) if suitable habitat is present. Suitable western prairie fringed orchid habitat includes warm season, native grasslands, or hay meadows.

Based on known habitat requirements, it is unlikely that western prairie fringed orchid would occur on the project study areas given the absence of warm season, native grasslands and the occurrence of past disturbance on the project area. Additionally, the hay meadows located throughout the study areas consist mostly of cultivated nonnative species which would decrease the potential for occurrence of western fringed prairie orchid. During field visits and investigations conducted the week of March 21, 2011, western prairie fringed orchid was not observed on either the East or West Site study areas. However, the optimal time to detect the western prairie fringed orchid is in early June. The Kansas Biological Survey (KBS) was contacted to determine the necessity of plant surveys on the project areas. Information provided by the KBS on October 20, 2011 indicated that a review of the Kansas Natural Heritage Inventory was performed for records of the western prairie fringed orchid and its habitat at the project area. There were no records located and a survey performed in 2005 in Leavenworth County did not identify any potential habitat in the vicinity of the project area. Additionally, due to the absence of any untilled, native prairie and hay meadows that are planted to non-native species it is unlikely that the western prairie fringed orchid would occur on the project area. Therefore, surveys would not be required for the western prairie fringed orchid.

The redbelly snake and smooth earth snake are both considered threatened within the state of Kansas. Information provided by the KDWPT on July 27, 2011 reports that Designated Critical Habitat (DCH) for the smooth earth snake (*Virginia valeriae*) and redbelly snake (*Storeria occipitomaculata*) occur within the East Site. The preferred habitat of the redbelly snake and smooth earth snake includes oak-hickory forests, sparse wooded areas, forest edges, rock outcroppings or rocky surfaces, steep or sloped areas, large amounts of leaf litter, rotten logs, or other surface litter, open areas, moist conditions, and locations near perennial water sources..

Habitat assessment studies were undertaken during field visits conducted by LBG on both sites in the week of March 21, 2011. During the habitat assessment, two biologists surveyed the project area by conducting pedestrian random meander surveys throughout the entire property to characterize habitat conditions within each community and to look for evidence of current or past presence of listed species. No state or federal species of special status were observed during the site visit or have been reported to occur on the project area. However, potential habitat for the two state threatened snake species was observed on the East Site within the riparian area adjacent to Corral Creek. The redbelly or smooth earth

snakes are very elusive species that inhabit locations with extensive surface cover and outcroppings causing observations to be difficult.

Both KDWPT and U.S. Fish and Wildlife Service (USFWS) confirmed that no other species on the threatened and endangered list or species in need of conservation list are likely to be present within the project area. Suitable habitat to support threatened and endangered species and species in need of conservation, other than the two threatened snake species, most likely does not exist within the project area. However, the riparian forested areas may contain some suitable habitat for several of the bird and small mammal species. According to USFWS, the American burying beetle historically was present in the county, although there is very little to no suitable habitat for this species and it currently is thought to be absent from the area (TEC, Inc. 2009). The eastern spotted skunk also was present historically according to KDWPT, however it has not been observed within the county recently (TEC, Inc. 2009).

A list of threatened and endangered species and species in need of conservation in Leavenworth County was retrieved from the KDWPT (Table III-6). Of the 17 threatened and endangered species, eight are fish species. The water sources present throughout the site are not suitable habitat for these fish which prefer turbid, fast waters or deep, slow waters accompanied by a range of silt, sand, and gravel substrates.

2. Potential Impacts and Mitigation

a. Vegetation

Construction of the FCI and FCP under both alternative development plans (FCI East-1 and East/West Composite) would result in unavoidable impacts to vegetative communities, including wetlands. The majority of impacts resulting from construction of the FCI and FCP would occur to upland areas that have long been used as pasture. These areas, in their current condition, bear little resemblance to their original condition. Although areas that have been selectively cleared may promote regeneration of early successional species which provide habitat for woodland species, the natural connectivity of habitats within the East and West Sites has already been substantially altered.

The proposed FCI requires stringent perimeter security systems while the satellite camp, staff training facilities, and warehouses are generally unfenced. Due to the nature of the proposed project and the landscapes comprising the alternative sites, the BOP will require additional security measures within the vicinity of the FCI. Included among such measures will be a 300-foot clear zone extending from the edge of the outer security fence around the circumference of the FCI to permit unimpeded visual observation. Although all large trees and shrubs within this clear zone would be removed, low growing native vegetation would remain. This area would not be cleared and grubbed although the clear zone would be permanently maintained to ensure clear lines of sight by security personnel. Impacts to wetlands and waters of the U.S. as a result of the 300-foot clear zone would be considered as temporary impacts since the location, extent and functioning of any affected wetland areas would not be permanently altered. The precise estimate of permanent and temporary impacts to wetlands will be dependent upon the final development scheme.

Temporary construction impacts include construction access roads and construction equipment staging and storage areas. In these areas, potential impacts include vegetation clearing, vehicular movements possibly resulting in tire ruts and surface soil disturbance. Mitigation in these areas would commence upon construction completion. Restoration would include grading and leveling to remove surface

disturbance and tire ruts. This would be followed by seeding and planting of any temporarily disturbed areas.

b. Common Wildlife

Development of the proposed project under both alternatives would have both short-term (temporary) and long-term (permanent) impacts on biological resources located within the immediate vicinity of the selected site. Short-term impacts are directly related to construction activities required for the establishment of the construction pad; (i.e. clearing, cutting and filling) as well as increased noise and visual disturbance from construction machinery and the presence of humans. Long-term impacts include the permanent loss of vegetative communities within the footprint of development, and a decrease in the quality of the habitat immediately adjacent to the proposed facility due to increase noise levels, traffic, lighting and other human activities. In addition, long-term changes in the availability and type/composition of vegetative habitat, including an increase in habitat fragmentation is a possibility.

During construction of the proposed facility, wildlife may be harmed or displaced, primarily as a result of construction machinery operations during initial site clearing and similar earthwork. Less mobile species, such as small mammals, reptiles, and amphibians are expected to incur greater mortality than more mobile species. More mobile species such as shrew, raccoon, bobcat and deer may disperse to adjacent habitat when disturbed by construction activities. Areas with similar habitats are present adjacent to the alternative sites and are expected to accommodate most of the displaced wildlife. Wildlife which is unable to find adequate breeding and foraging habitat may fail to breed successfully or disperse greater distances increasing the probability of mortality. Upland riparian corridors or wetland areas temporarily disturbed would likely be recolonized by wildlife communities similar to pre-existing communities after construction has been completed.

Increased noise levels, as a result of construction activities, can affect wildlife by inducing physiological changes, nest or habitat abandonment, behavioral modifications or disrupt vocalization of species required for breeding or defense (Larkin, 1996). Continuous noise levels from construction activities would range from 71 to 98 dBA at 50 feet from the source. The Environmental Impact Data Book (Golden et. al., 1980) suggests that noise levels higher than 80 to 85 dBA are sufficient to startle or frighten birds and small mammals. At 800 feet from the source, the noise level would be reduced to 65 dBA, and little potential for disturbing wildlife would occur. As a result, impacts on wildlife from construction noise are expected to be temporary lasting only for the duration of construction (approximately 36 months) and negligible.

Construction during breeding season and while rearing of young can reduce or prevent successful reproduction, while construction during winter weather may force wildlife from protective cover and increase the probability of mortality. To minimize construction-related impacts on wildlife, the BOP would adhere to permit conditions that may restrict the timing of construction activities based on important biological periods. No additional impacts to biological resources are expected to occur once construction of the proposed facility is completed.

Riparian corridors are important wildlife habitat and potentially used as a travel corridor for various species. Development of the FCI and FCP may impact these riparian corridors. Placement of the facilities within the interior of the site, while limiting views of the facility from nearby roads and adjoining properties, has the potential to contribute to habitat fragmentation. Perimeter security fences would be placed around the FCI only, allowing wildlife to utilize undeveloped portions of the site.

c. Wetlands and WOUS

Section 404 of the Clean Water Act, requires consideration of impacts to wetlands and waters of the U.S. and their associated functions and values. Other impacts considered include habitat fragmentation, stormwater runoff, sedimentation, hydrologic modifications and temporary disturbance incurred during construction that may adversely affect a wetland's functions and values.

Impacts to wetland systems, totaling approximately 3.68 acres for the FCI East-1 Alternative and approximately 3.81 acres on the Composite Alternative, have been identified. Additionally, under the FCI East-1 Alternative, approximately 3,718 linear feet of stream would be impacted while approximately 4,118 linear feet of stream would be impacted under the Composite Alternative. Impacts to wetlands and other WOUS will be subject to the Section 404 permitting process. An approved Jurisdictional Determination was provided by the USACE on September 21, 2011 (Appendix E).

USEPA has developed criteria to be used in the evaluation of discharges of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act. Further elaboration and clarification was provided in a Memorandum of Agreement (MOA) between USEPA and the USACE on Clean Water Act Section 404(b)(1) Guidelines in March 1990 (55 FR 9211). This MOA indicates that the USACE and USEPA will strive to achieve a goal of no overall net loss of functions and values for wetlands. To achieve this goal the USACE and USEPA have established a sequence by which proposed projects involving wetland impacts are to be evaluated. First, it must be determined that potential impacts have been avoided to the maximum extent practicable. Remaining impacts are to be minimized through appropriate and practicable steps including project modifications. Finally, compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been incorporated.

Unavoidable impacts to wetlands, wildlife and aquatic resources require mitigation to offset ecological losses to habitat and their functional value to the local and regional environment. Such mitigation is prescribed in order to meet NEPA goals and objectives associated with substantial impacts and the selection of the preferred alternative as well as the least environmentally damaging practicable alternative (LEDPA). Additionally, impacts to waters of the U.S. including wetlands, are regulated under state and federal laws including the Clean Water Act as regulated by the USACE pursuant to Section 404 of the Act. As such, impacts to waters of the U.S. would require issuance of fill permits from the USACE with conditions anticipated to require mitigation for unavoidable impacts and losses of wetland and water resources. During the Section 404 permitting process, avoidance, minimization, and reduction components will be included to reduce wetland impacts to the maximum extent practicable and feasible. Where impacts occur, compensatory mitigation will be used to offset wetland impacts.

The assessment of possible mitigation for impacts associated with the proposed project will be based on a hierarchy of mitigation alternatives in accordance with federal and state guidelines. Initially, impact mitigation will be assessed in terms of avoidance. This will result in the assessment and advancement of alternatives that will avoid wetland impacts to the maximum extent feasible. Avoidance of wetland impacts has resulted in substantially reduced impacts, but given the nature and scale of the proposed project, all impacts could not be eliminated. Remaining potential impacts to wetlands will then be assessed in terms of the potential to minimize and reduce such impacts through facility re-design, re-orientation, and access road modifications. As a result, wetland impacts will be further minimized and reduced to the maximum extent feasible resulting in a correctional facility development plan that meets project goals and objectives.

Impacts to wetlands and waters of the U.S. will be unavoidable, with compensatory mitigation the preferred approach to mitigate for wetland and aquatic resource impacts. Compensatory mitigation alternatives will be investigated at the regional and local level during the Section 404 permitting process. The analysis will determine whether utilizing a mitigation bank, in-lieu payment, on-site preservation and/or other forms of mitigation are appropriate and acceptable compensation for impacts to wetlands and waters of the U.S. Undeveloped lands surrounding the development site would be protected under federal ownership by the BOP. Such ownership affords the potential to preserve and protect a large proportion of the remaining wetland and riparian habitats from future development and impacts and will be considered in developing the compensatory mitigation plan.

In addition to mitigation measures established during project permitting, the following best management practices would be utilized during construction to further reduce potential impacts to ecologically sensitive areas, including wetlands. Depending on their practicability and feasibility, best management practices to be followed include:

- To the maximum extent possible, existing surface water drainage patterns would be maintained through the use of pipes, swales and culverts.

- Track or balloon tire vehicle rigs would be used whenever possible to perform construction in wetland areas. Skid rigs may only be used when wooden planks or snow fencing is laid down to minimize disturbance of the ground surface.

- Access routes to the construction location shall be minimized to the maximum extent practicable. Matting or track equipment would be used when the ground is soft to avoid soil compaction. When used, matting should not remain in place for more than five days. If it is necessary to leave matting in place long enough that underlying vegetation would perish, the disturbed area would be revegetated with appropriate native species as soon as practical.

- Excess soil material may be spread evenly over the ground surface in a shallow layer no more than three inches deep, and would not form an impediment to surface water flow nor would it be compacted.

- Disturbance/removal of trees for access to the construction site shall be minimized to the maximum extent practicable.

- Temporarily disturbed areas would be restored to their pre-existing conditions. Planting of disturbed areas would occur as soon as possible to minimize the possibility of erosion. Stormwater outlets would be designed to minimize outlet velocities that might otherwise cause downstream erosion.

- Excavation and filling activities would be conducted in a manner to minimize turbidity and sedimentation into wetlands. Placement of embankments (filling) would be conducted in such a manner as to contain sediment at the fill areas. All construction activities would be performed in accordance with an approved Soil Erosion and Sediment Control Plan.

- The limits of disturbance would be indicated on the final design plans and would be the maximum necessary for the construction. The limits of encroachment would also be posted with signage to prevent unauthorized intrusion by construction vehicles.

- Equipment storage would be restricted to areas disturbed for actual construction. Temporary roads or soil stockpiles would not be permitted in wetland areas that are not needed for actual facility construction.

- A detailed Sediment and Erosion Control Plan would be developed as an integral part of the construction plans. Emphasis would be given to the prevention of sediments from entering adjacent and nearby wetlands. This can be controlled through the use of diversion ditches at the toe of slope of fill and the installation of sedimentation basins and traps. Slopes would be protected as soon as possible with vegetative cover, or as a temporary measure with fiber mats, plastic or straw. A protective area of vegetative cover would be established between embankments and wetland areas.

d. Special Status Species

Based on information provided by the USFWS, one federally protected species may occur in the vicinity of both alternative sites if suitable habitat is present. Based on known habitat requirements, it is unlikely that western prairie fringed orchid would occur on the project study areas given the absence of warm season, native grasslands and the occurrence of past disturbance on the project area. Additionally, according to observations made during the field surveys, the hay meadows located within the study areas consist mostly of cultivated nonnative species which provide unsuitable to marginal habitat for western prairie fringed orchid. There are no records of the western prairie fringed orchid and its habitat in the vicinity of the project area and it is unlikely that the western prairie fringed orchid would occur on the project area. Therefore, surveys would not be required for the western prairie fringed orchid.

The redbelly snake and smooth earth snake are both considered threatened within the state of Kansas. Information provided by the KDWPT reports that Designated Critical Habitat (DCH) for the smooth earth snake and redbelly snake occur within the riparian corridor adjacent to Corral Creek. Development of the proposed project under either development scenarios is not expected to occur in DCH or potential habitat for these species. Therefore, no adverse affect to the redbelly snake or the smooth earth snake will occur and mitigation is not warranted.

e. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at any of the alternative sites. As a result, impacts to biological resources would not occur and mitigation measures would not be required.

G. CULTURAL RESOURCES

1. Existing Conditions

The cultural resource requirement is met through compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, which is implemented through regulations contained in 36 CFR Part 800. These regulations require federal agencies to consider the existing information, undertake identification activities if the existing information is insufficient, determine whether any cultural resources contained within a given project area meet the criteria for eligibility for inclusion in the National Register of Historic Places (NRHP), determine the effect of the proposed project on significant historic properties, consult with the State Historic Preservation Office (SHPO) and afford the Advisory Council on Historic Preservation (ACHP) the opportunity to comment.

Cultural resource investigations in support of the proposed action were undertaken pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended); the Archaeological and Historical Preservation Act of 1974; Executive Order 11593; and Title 36 of the Code of Federal Regulations, Parts 660-66 and 800 (as appropriate). The field investigations and related work met the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Federal Register 48:190:44716-44742) (U.S. Department of the Interior, 1983) and the Kansas SHPO Guide for Archaeological Survey, Assessment and Reports (KSHS 2004) issued by the Kansas State Preservation Office. Pursuant to 36 CFR 800.3, consultation with the Kansas SHPO was initiated by letter on November 29, 2010, informing that agency of the potential for a BOP project undertaking in Leavenworth, Kansas. A meeting was held with SHPO on December 1, 2011 to discuss the cultural resource investigation to be undertaken in support of the proposed project. Also in accordance with 36 CFR 800.3-4, the BOP initiated consultation regarding this undertaking with Native American Tribes in January 2011. A Phase I Cultural Resources Survey report (June 2010) was prepared and has been reviewed by SHPO. SHPO concurred with the findings of the report; but requested details of the project impacts to be delineated in the report abstract. A copy of the SHPO letter is located in Appendix D.

The purpose of the investigation was to identify any cultural resources within the area of potential effects (APE) for the proposed undertaking, and to evaluate such resources as may be found regarding their eligibility for listing in the NRHP. The criteria for evaluating a cultural resource for inclusion in the National Register of Historic Places are set forth in 36 CFR 60.6:

National Register Criteria for Evaluation. The quality of significance in American History, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history; or
(b) That are associated with the lives of persons significant in our past; or
(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction or
(d) That have yielded or may be likely to yield, information important in prehistory or history.

The BOP property in Leavenworth encompasses approximately 754 acres. In 2009, TEC, Inc. performed a cultural resource reconnaissance survey for the proposed project. However, the TEC, Inc. study included only 52 acres surrounding the current federal prison camp (the "Camp Site") and 161 acres east and northeast of the U.S. Penitentiary (the "South Site" and the "North Site", respectively). In 2011, The Louis Berger Group, Inc. completed intensive cultural resource survey for 371 acres in an expanded project area with additional architectural survey of the extant USP and FPC.

a. Archaeology

As part of the planning for the proposed project, intensive archaeological survey investigations were conducted across 371 acres at the USP Leavenworth property. The study area included the 144-acre West Site and 227-acre East Site. The project site is found within portions of Sections 22, 23, 26, and 27 all in Kickapoo Township (T52N, R22E).

The APE coincides with the 371 acres described above and shown in Exhibits III-7a and III-7b. Within the APE there is the potential for direct impacts from ground-disturbing activities associated with construction of the proposed facility. Such ground-disturbing activities include but are not limited to stripping and scarification of surface soils, construction of foundations and footings, trenching and excavation for services such as sewer and water, installation of fencing, and creation of roadways and parking areas. In general, the vertical dimension of the APE is limited to approximately 3.28 feet (one meter), except in those areas where trenching is necessary for foundations and utilities.

In general, both prehistoric and historic archaeological sites tend to be situated on landforms which are usually dry and level, near reliable sources of water, and often near timber for fuel and construction material. Sites are commonly located on terraces, hill tops, bluff tops, and ridge tops to take advantage of vista that allow game animals or enemies to be observed at a distance. Archaeological sites in the USP Leavenworth project vicinity follow this pattern.

The current investigation re-examined six previously recorded archaeological sites: 14LV110, 14LV111, 14LV337, 14LV364, 14LV365, and 14LV366. Site 14LV110 is a historic dump strung along an intermittent drainage with butchered cow and pig bone, and hundreds of broken dish fragments, bottle glass, and other materials associated with the early history of the USP (1906 to about 1920). This site was investigated by pedestrian survey and eight shovel tests at five-meter intervals by the American Resources Group, Ltd. in 1988. The site was recommended potentially eligible for listing in the NRHP under Criterion D (McNerney et al.1988).

Site 14LV111 consists of an isolated find of one chipped stone flake of chert situated in a bulldozed area by a cattle loading facility. The site was investigated by pedestrian survey and was recommended not eligible for listing in the NRHP (McNerney et al.1988).

Site 14LV337 consists of three chipped stone fragments, one very small, possible grit-tempered pottery sherd, and one small mollusk shell recovered from a grass-covered field in the southwest portion of the proposed West Site by Kansas State Historic Society (KSHS) archaeologists in 1974. Brick, historic ceramic fragments, and burned and unburned rock also were noted. No subsurface testing was performed. No recommendation of NRHP eligibility was made, but it was hypothesized that the historic materials might be associated with the freight yards of Russell, Majors, and Waddell and date from 1850 to 1860 (Barr and Rowlison 1974).

In 1984, KSHS archaeologist Randy Thies excavated three shovel tests on the high ground at the west end of the site. Only scattered brick and modern debris were found (Thies 1984). In 2006, Thies investigated the western part of Site 14LV337, which lay within the proposed construction corridor associated with a realignment of U.S. Highway 73 and north extension of 20th Street. Thies made a pedestrian survey and excavated eight auger holes and one shovel test. No prehistoric or historic artifacts were recovered. Site 14LV337 was recommended not eligible for listing in the NRHP (Thies 2006).

Site 14LV364 was recorded by KSHS archaeologists Tom Barr and Don Rowlison in 1977 as a small prehistoric camp or lithic reduction site on a ridge toe in the northwestern part of the East Site. A pedestrian survey yielded several chipped stone artifacts, including a biface, a corner-notched projectile point base, a piece of a scraper, a core remnant, two flakes, and mollusk fragments. No subsurface testing was performed at the site and no recommendation regarding NRHP eligibility was made (Barr and Rowlison 1977).

The KSHS archaeologists recorded nearby site 14LV365 on a knoll of another ridge toe while performing a pedestrian survey in 1977. Prehistoric artifacts recovered from the site included two biface sections, a hammerstone, two possible celts, two core fragments, and 44 pieces of flaking debris. Historic artifacts included two brass cartridges, a bullet, a picket pin, a mule shoe, a metal chain segment, and bottle glass. No subsurface testing was performed at the site and no recommendation regarding NRHP eligibility was made (Barr and Rowlison 1977).

Barr and Rowlison also recorded Site 14LV366 as a small camp or lithic reduction site on a ridge top south of Site 14LV364. Recovered artifacts included a core fragment and four chipped stone flakes. No subsurface testing was performed at the site and no recommendation regarding NRHP eligibility was made (Barr and Rowlison 1977).

The current archaeological study investigated each of the six previously recorded sites. Table III-7 summarizes the findings and recommendations for each site. Site 14LV110 apparently has been highly disturbed by stream flooding and erosion.. Almost no evidence of the densely concentrated dump reported by Wagner et al (1989) and the artifacts seem to be redeposited by intense episodic flooding. Becauseof the disturbance, no subsurface testing was performed at the site. The artifacts at Site 14LV110 are redeposited rather than stratified and have low potential to answer important questions about the penitentiary. Therefore Site 14LV110 is recommended not eligible for listing in the NRHP.

Subsurface testing at the recorded location of Site 14LV111 did not yield any prehistoric or historic archaeological deposits. McNearney et al. (1988:139) reported that this area had been disturbed by bulldozing and cattle. Shovel testing indicated that cultivation and erosion also have disturbed the site area. Site 14LV111 remains the location of an isolated find consisting of one chert flake. Therefore, LBG concurs with the original recommendation that this site be considered not eligible for listing in the NRHP.

Subsurface testing at Site 14LV337 resulted in the recovery of no prehistoric or historic archaeological remains. Therefore, this site is recommended not eligible for listing in the NRHP. It is very likely that the prehistoric artifacts found by Barr and Rowlison in 1974 were displaced by cultivation and erosion and are associated with nearby Site LBG-3, which was identified during the current investigation.

Site 14LV364 was investigated by shovel testing at 10-meter intervals. Only one chipped stone flake was found at the site. The ridge toe has been significantly disturbed by cultivation and erosion. Therefore, Site 14LV364 is recommended not eligible for listing in the NRHP.

Site 14LV365 also was investigated by shovel testing at 10-meter intervals. Several chipped stone flakes were recovered from the plowzone in eight of the 81 shovel tests. No historic artifacts were found. This ridge toe has been significantly disturbed by cultivation and erosion, suggesting poor site integrity. Therefore, Site 14LV365 is recommended not eligible for listing in the NRHP.

Close-interval shovel testing was applied across the reported location of Site 14LV366 as well. None of the subsurface tests yielded any prehistoric or historic artifacts. The ridge top has been significantly disturbed by cultivation and erosion. Therefore, Site 14LV366 is recommended not eligible for listing in the NRHP.

TABLE III-7
SITE SUMMARY TABLE FOR USP LEAVENWORTH

Field Site Number	Project Location	Cultural Affiliation	Site Type	Preliminary NRHP Recommendation
14LV110	East Site	Historic (circa 1900)	Dump	Not Eligible: Significant Disturbance by Borrow and Erosion
14LV111	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Significant Disturbance by Grading, Cultivation, and Erosion
14LV337	West Site	Unknown Prehistoric	Camp	Not Eligible: No Positive Shovel Tests; Some Disturbance by Cultivation
14LV364	East Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: Only 1 Positive Shovel Test; Significant Disturbance by Cultivation and Erosion
14LV365	East Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 8 Positive Shovel Tests; Significant Disturbance by Cultivation and Erosion
14LV366	East Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: All Negative Shovel Tests; Significant Disturbance by Cultivation and Erosion
14LV167	West Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 4 Positive Shovel Tests; Some Disturbance by Cultivation
14LV168	West Site	Late Prehistoric	Lithic Scatter	Not Eligible: 11 Positive Shovel Tests and Surface Collection; Significant Disturbance by Cultivation (Garden Area)
14LV169	West Site	Late Prehistoric	Lithic Scatter	Potentially Eligible: 31 Positive Shovel Tests; Some Disturbance by Cultivation
14LV170	West Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 2 Positive Shovel Tests; Significant Disturbance by Cultivation and Erosion
14LV171	West Site	Late Prehistoric	Camp 2 Sherds and Lithics	Potentially Eligible: 39 Positive Shovel Tests; Some Disturbance by Cultivation and Erosion

TABLE III-7 (CONTINUED)
SITE SUMMARY TABLE FOR USP LEAVENWORTH

Field Site Number	Project Location	Cultural Affiliation	Site Type	Preliminary NRHP Recommendation
14LV172	West Site	Late Prehistoric	Lithic Scatter	Potentially Eligible: 57 Positive Shovel Tests; Some Disturbance by Cultivation and Erosion
14LV173	West Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 5 Positive Shovel Tests; Significant Disturbance by Cultivation and Erosion
14LV174	East Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 3 Positive Shovel Tests and Surface Collection; Significant Disturbance by Cultivation and Erosion
14LV175	East Site	Historic (1938-1980s)	Foundation and Artifact Scatter	Not Eligible: 11 Positive Shovel Tests, Concrete House Foundation; Some Disturbance by Demolition and Cultivation
14LV176	East Site	Unknown Prehistoric	Lithic Scatter	Potentially Eligible: 18 Positive Shovel Tests; Some Disturbance by Cultivation and Erosion
14LV177	East Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 3 Positive Shovel Tests; Some Disturbance by Erosion
14LV178	West Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 2 Positive Shovel Tests; Significant Disturbance by Cultivation and Erosion
14LV179	West Site	Unknown Prehistoric	Lithic Scatter	Not Eligible: 1 Positive Shovel Test; Significant Disturbance by Road Grading and Erosion
14LV180	East Site	Unknown Prehistoric	Isolated Find (3 Debitage)	Not Eligible: Three Generic Chipped Stone Flaking Debris
14LV181	East Site	Unknown Prehistoric	Lithic Scatter	Potentially Eligible: 20 Positive Shovel Tests; Some Disturbance by Cultivation and Erosion
IF-1	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris

TABLE III-7 (CONTINUED)
SITE SUMMARY TABLE FOR USP LEAVENWORTH

Field Site Number	Project Location	Cultural Affiliation	Site Type	Preliminary NRHP Recommendation
IF-2	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-3	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-4	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-5	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-6	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-7	West Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-8	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-9	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-10	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-11	East Site	Unknown Prehistoric	Isolated Find (1 Biface Frag.)	Not Eligible: Midsection of a Chipped Stone Biface/Point
IF-12	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-13	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-14	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris
IF-15	East Site	Unknown Prehistoric	Isolated Find (1 Debitage)	Not Eligible: Single Generic Chipped Stone Flaking Debris

Six previously recorded sites, 15 new archaeological sites and 15 new isolated find spots were identified and subjected to subsurface testing during the current survey investigation. Fourteen of the new sites (14LV167 through 14LV174, 14LV176 through 14LV181) are prehistoric period sites. They generally consist of chipped stone flaking debris with occasional arrow points and, at Site 14LV171, with two small pottery sherds. The prehistoric sites are situated on terraces of streams and on ridge or hill tops. The single historic period site, 14LV175, consists of a concrete house foundation and associated structural and household debris. The site, which was the location of the prison farm manager's residence (1938 to about 1980), is also on a terrace.

Within the West Site and East Site study areas, ground surface visibility was less than 20 percent, except in the area of the prison camp garden at the north end of the West Site and the staff housing garden located in the southwestern part of the East Site. In the prison garden area, surface visibility was 60 to 90 percent in the eastern third and western third, but less than 10 percent in the central third. In the staff housing garden area, surface visibility was 100 percent. Close interval pedestrian survey (three to five meters between surveyors) was performed across both garden areas and artifacts locations were recorded.

Elsewhere, most of the ground surface was covered with low prairie grasses. The forested areas at the north and east sides of the East Site included mostly deciduous trees varying from about two to 20 inches in diameter, shrubs, brambles, lianas and low grasses. The surface of the forested areas was covered with leaves and other detritus and low grasses and surface visibility was less than 20 percent. As the time of the survey was early spring, leaves did not begin to appear on the vegetation until the last full week of the survey. Pedestrian survey occurred primarily as systematic shovel testing was performed. In locations where slopes were too steep to be suitable for intact archaeological deposits, where subsurface utilities were present (especially the high pressure gas pipelines), where surface deposits had been stripped for borrow or as the result of construction, and where modern dumps were identified, no subsurface testing was performed, but nonsystematic pedestrian survey was made. Thus, all parts of the East Site and West Site were inspected.

A 30-meter grid of shovel tests was excavated across the West Site and East Site, except in parts of the forested areas of the East Site and at the locations described above. The grid was staggered, so that the shovel tests in every other line of tests were off-set 15 meters. This procedure followed Kansas SHPO guidelines and optimized the effectiveness of the survey grid. In the forested area of the East Site north of Corral Creek and in the wooded area south of Corral Creek west of the clear-cut area for the overhead transmission lines, the shovel test grid was composed of transects set 15 meters apart with shovel tests at 30-meter intervals in a parallel pattern. This was done because deep erosional ravines cut through these areas and the vegetation, even without leaves on the branches, was sufficiently dense that it was difficult to maintain regular testing intervals.

Where archaeological remains were identified by surface finds or shovel testing, close-interval shovel testing was performed to determine the horizontal boundaries of the resource. A cruciform of shovel tests were placed in the cardinal directions at five-meter intervals around nine of the single artifact surface finds, at five- and ten-meter intervals around 11 of the single artifact surface finds, and at five- and 10-meter intervals around shovel tests that were "positive" for artifacts. If a shovel test radial to the original positive shovel test yielded one or more artifacts, then additional radial shovel tests were dug at five- and ten-meter intervals in the cardinal directions around the positive radial test until at least two shovel tests were excavated in each direction at five-meter intervals that were "negative" (e.g. no artifacts found). This procedure follows the Kansas SHPO guidelines and was consistent with the overall grid of shovel tests across the West Site and East Site.

As previously stated, 15 new archaeological sites were identified in the current study, seven in the West Site (14LV167 through 14LV173) and eight in the East Site (14LV174 through 14LV181). Site 14LV167 is a small prehistoric lithic scatter consisting of seven pieces chipped stone flaking debris from four of the shovel tests. The site, which is situated in the northwest part of the West Site, has generic artifacts that cannot be attributed to any cultural group or time period. The site has been disturbed by cultivation. Because the site cannot contribute important new information about the prehistory of the Leavenworth locality or the broader region, the site is recommended not eligible for listing in the NRHP.

Site 14LV168 is a broadly distributed lithic scatter identified in the prison garden area in the northern part of the West Site. A total of 97 artifacts were collected from the ground surface and 19 artifacts from 11 of the shovel tests. Three Scallorn type arrow points indicate that site is associated with the Late Prehistoric period (A.D. 700 to about 1500). In Kansas, this is also known as the "Middle Ceramic" period. Although temporally diagnostic artifacts were recovered, the site deposits have been significantly been disturbed by decades of cultivation and erosion. The site appears to have low potential to contribute important new information about the prehistory of the Leavenworth locality or of the region. Therefore, the site is recommended not eligible for listing in the NRHP.

Site 14LV169 is a moderately-sized lithic scatter located south of Honor Farm Drive and west of the former alignment of Santa Fe Trail in the southwest part of the West Site. A total of 68 artifacts were collected from 31 of the shovel tests. Two Scallorn type arrow points indicate that site is associated with the Late Prehistoric/Middle Ceramic period (A.D. 700 to about 1500). Subsurface testing indicates that there has been some disturbance as a result of cultivation, but the site appears to have potential for intact archaeological deposits. Therefore, the site is recommended potentially eligible for listing in the NRHP.

Site 14LV170 is a small prehistoric lithic scatter located in the northwest part of the Buffalo Pasture area in the southwest portion of the West Site. A surface concentration in a buffalo wallow and two of the shovel tests yielded a total of 13 pieces of chipped stone debitage. The site has generic artifacts that cannot be attributed to any cultural group or time period and has been significantly disturbed by cultivation and erosion. Therefore, the site appears to have no potential to yield significant new information about the prehistory of the Leavenworth locale or the broader region and is recommended not eligible for listing in the NRHP.

Site 14LV171 is a large camp site on a terrace near a tributary stream in the Buffalo Pasture area in the southern part of the West Site. Thirty-nine of the shovel tests yielded 40 pieces of chipped stone flaking debris and two small, grit-tempered pottery sherds with plain/smoothed surfaces. The pottery fragments and two side-notched arrow points suggest that the site is associated with the Late Prehistoric/Middle Ceramic period (A.D. 700 to about 1500). Subsurface testing indicates that there has been some disturbance as a result of cultivation, but the site appears to have potential for intact archaeological deposits and to contribute significant new information about the late prehistory of the area. Therefore, the site is recommended potentially eligible for listing in the NRHP.

Site 14LV172 is a large lithic scatter on a terrace near a tributary stream in the Buffalo Pasture area in the southern part of the West Site. Fifty-seven of the shovel tests yielded 113 pieces of chipped stone flaking debris, two cores, four bifaces, and two Scallorn type arrow points. The two arrow points indicate that site is associated with the Late Prehistoric/Middle Ceramic period (A.D. 700 to about 1500). Subsurface testing indicates that there has been some disturbance as a result of cultivation, but the site appears to have potential for intact archaeological deposits and to contribute important new

information about the late prehistory of the area. Therefore, the site is recommended potentially eligible for listing in the NRHP.

Site 14LV173 is a small prehistoric lithic scatter in the northeast part if the Buffalo Pasture area in the southern portion of the West Site. Five of the shovel tests yielded 13 pieces of chipped stone flaking debris. The site has generic artifacts that cannot be attributed to any cultural group or time period and has been significantly disturbed by cultivation and erosion.Because the site has no potential to provide important new information about the prehistory of the locality or region, the site is recommended not eligible for listing in the NRHP.

Site 14LV174 is a small prehistoric lithic scatter in staff garden area located in the southwestern portion of the East Site. Six surface finds and three of the shovel tests yielded eight pieces of chipped stone flaking debris. The site has generic artifacts that cannot be attributed to any cultural group or time period. The site has been significantly disturbed by cultivation and erosion. As a result, the site appears to have low potential for yielding important new information about the prehistory of the Leavenworth area or broader region. Therefore, the site is recommended not eligible for listing in the NRHP.

Site 14LV175 is the location of the prison farm manager's residence (1938 to 1980) in the southern side of the East Site. The site consists of a concrete house foundation and associated structural and household debris. Charred material observed in shovel tests suggests that the house may have been burned. Small amounts of wire nails, window glass, asbestos tiles, brick, screws, spacers, bottle glass, and broken stoneware, earthenware, porcelain, and whiteware dish fragments (totaling 73 items) were recovered from 11 of the shovel tests at the site. Some disturbance has occurred as a result of demolition of the structure and cultivation in the northern part of the site area. The site is unlikely to yield any important new information about the operation of the prison farm or U.S. Penitentiary. Therefore, the site is recommended not eligible for listing in the NRHP.

Site 14LV176 is a large lithic scatter situated in the northeast portion of the East Site. Eighteen of the shovel tests yielded 39 pieces of chipped stone flaking debris. Subsurface testing indicates that there has been some disturbance as a result of cultivation, but the site appears to have potential for intact archaeological deposits. Because the site has good potential for contributing significant new information about the late prehistory of the Leavenworth area and region, the site is recommended potentially eligible for listing in the NRHP.

Site 14LV177 is a small lithic scatter situated on a terrace on the north side of Corral Creek in the northern portion of the East Site. Three of the shovel tests yielded 15 pieces of chipped stone flaking debitage, 12 of which came from one shovel test. The site has been disturbed by some erosion. The site includes a small assemblage of generic flaking debris and is not likely to contribute important new information about the prehistory of the area. Therefore, the site is recommended not eligible for listing in the NRHP.

Site 14LV178 is a small lithic scatter on a terrace on the north side of an intermittent stream located in the Buffalo Pasture area in the southern portion of the West Site. In all, two pieces of chipped stone flaking debitage have been recovered from two of the shovel tests at this site. The site has suffered significant disturbance by cultivation and erosion. Site LBG-12 has no potential to provide important new information about the prehistory of the area. Therefore, the site is recommended not eligible for listing in the NRHP.

Site 14LV179 is a small lithic scatter on the uplands south of the fire house and landscape maintenance building at the west side of the penitentiary. One of nine shovel tests at this location yielded five pieces of chipped stone flaking debris from the plowzone. The site is significantly disturbed by road grading and erosion. Because the site has no potential to yield important new information about the prehistory of the Leavenworth locale or broader region, the site is recommended not eligible for listing in the NRHP.

Site 14LV180 is a small lithic scatter situated on a small terrace at the south and west of the confluence of an intermittent stream and Corral Creek in the eastern portion of the East Site. One shovel test at the site yielded three pieces of chipped stone flaking debris. The site has been disturbed by cultivation and erosion. The site is recommended not eligible for listing in the NRHP because it has no potential to provide significant new information about the prehistory of the area.

Site 14LV181 is a large prehistoric camp on a ridge in the southeastern portion of the East Site. Twenty of 93 shovel tests yielded a large number of chipped stone flakes and two pieces of fire-cracked rock. The presence of fire-cracked rock suggests the possibility of hearths that could yield charred material suitable for radiocarbon dating. The archaeological deposits are in the surface layer of soil, but do not appear to be significantly disturbed by cultivation or erosion. The quantity of flaking debris suggests that activity areas might be discerned. Therefore, Site 14LV181 is recommended potentially eligible for listing in the NRHP under Criterion D for its potential to contribute important new information about the prehistory of the Leavenworth County, Kansas.

In summary, the current archaeological investigation revisited six previously recorded sites and identified 15 new archaeological sites and 15 new isolated find spots. Table III-7 summarizes the site information. All six of the previously recorded sites (14LV110, 14LV111, 14LV337, 14LV364, 14LV365, and 14LV366) have been heavily disturbed by cultivation and erosion to a point where no cultural remains were discovered at Sites 14LV111, 14LV337, and 14LV366 and only a few artifacts were present at Sites 14LV110, 14LV364, and 14LV365. These six sites are recommended not eligible for listing in the NRHP under any criteria.

Newly recorded sites 14LV169, 14LV171, 14LV172, 14LV176, and 14LV181 are recommended as potentially eligible for listing in the National Register under Criterion D for their possible contribution of important new information about the prehistory of the region. These five sites appear to have intact archaeological deposits, despite some disturbance by cultivation and erosion. Sites 14LV169, 14LV171, and 14LV172 have chronologically diagnostic artifacts (e.g. arrow points and/or pottery sherds) that suggest Late Prehistoric/Middle Ceramic occupation (circa A.D. 700 to about 1500). The spatial relationships of these three sites also may suggest seasonal reoccupation of this locale. Criterion A (associated with important historic events), Criterion B (associated with persons important in our history), and Criterion C (associated with distinctive construction or artistic work) do not apply to these sites.

The other nine newly identified prehistoric sites (14LV167, 14LV168, 14LV170, 14LV173, 14LV174, 14LV177, 14LV178, 14LV179, and 14LV180) do not appear to have subsurface integrity as a result of cultivation and/or erosion. With the exception of 14LV168, the sites are small and lack chronologically diagnostic artifacts. Indeed, the chipped stone items at most of the sites is low in number and consists of generic debitage that could potentially be associated with any cultural group over the past 12,000 years that stopped briefly in this location. Thus, these sites are unlikely to contribute any important new information about the prehistory of the area and are recommended not eligible for listing in the NRHP under Criterion D. Criteria A, B, and C do not apply to these sites.

Historic Site 14LV175 is the location of the prison farm manager's residence. The house was constructed in 1938 and was destroyed about 1980. The site consists of a concrete foundation and a distribution of structural and household debris. The archaeological remains do not appear to offer any significant new information about the operation of the prison farm different than that which probably can be obtained from historic records. Therefore, Site 14LV175 is recommended not eligible for listing in the NRHP under Criterion D. Criteria A, B, and C do not appear to apply to this site.

The isolated find spots are typically considered to not be eligible for listing in the NRHP. With rare exception, such finds have virtually no characteristics that can contribute important new information about the prehistory or history of an area. Therefore, isolated find spots IF-1 through IF-15 are recommended not eligible for listing in the NRHP under any criteria.

b. Architecture

A reconnaissance architectural survey was conducted to identify of all resources on the BOP Leavenworth property to assess their eligibility for listing in the NRHP. Data collection for this survey involved the compilation of background information and review of previous architectural resource documentation. The APE for the architectural survey coincides with the USP Leavenworth property boundary.

Review of BOP files indicated that several architectural surveys had been conducted. In December 2005, BELLArchitects, PC completed a Historic Structure Report (HSR) for BOP Leavenworth (Appendix F). In that report, BELLArchitects concluded that the complex constituted an historic district eligible for listing in the NRHP under Criterion A "for its association with the early development of the Federal Prison system, which was the result of efforts by the U.S. Government to consolidate federal inmates into one maximum-security prison" and Criterion C as "an outstanding example of a prison constructed almost exclusively by convict labor" at a national level of significance. The period of significance for the district was defined as 1897 to 1945 (BELLArchitects, PC 2005:2-1).

In 2009, TEC, Inc. completed a reconnaissance study of the proposed project. Background research at the Kansas SHPO identified the NRHP-eligible USP Leavenworth Historic District within and adjacent to the project area. A previously un-surveyed pillbox structure was also identified. TEC, Inc. proposed an NRHP evaluation of all unidentified structures; and determination, through consultation with the Kansas SHPO, of the USP Leavenworth Historic District boundaries and contributing/non-contributing status of buildings, structures, and landscapes within the district.

The architectural survey identified a total of 73 buildings and structures at USP Leavenworth (Table III-8). Most of these properties had been identified by BELLArchitects in 2005 as part of the historic district; but had not been formally included in the Kansas Historic Resource Inventory. Three buildings had not been previously surveyed and/or evaluated with respect to NRHP Criteria: 1960 Warden's Residence, FPC Camp Site, and a pillbox bunker in the north-central part of the property. Four buildings had been removed since 2005: the disc throw tower, firing range cabin, FPC Weight Pavilion and oil tanks.

The architectural survey confirms the recommendations of BELLArchitects that USP Leavenworth is eligible for listing in the NRHP under Criteria A and C at a national level of significance. However, results of the background research and survey indicate that the Camp Site, built in 1960 as a farm dormitory, is a significant structure within the history of BOP Leavenworth and should be considered as a contributing structure. The Camp Site was constructed in 1960 with mostly prison labor as a replacement for the farm dormitory located on the prison farm in Platte County, Missouri. Prisoners resided in the new farm

TABLE III-8
PROPERTIES SURVEYED – USP LEAVENWORTH HISTORIC DISTRICT

BLDG. No.	HSR BLDG. No.	Name	Date	Status
	A-10	Roadways	ca.1905	Contributing Structures
70	A-14	Perimeter Wall	1904, 1911-17, 1971	Contributing Structure
56	B-01	Administration/Visitation	1929	Contributing Building
56	B-02	Rotunda	1929	Contributing Building
56	B-03	Intermediate Building	1929	Contributing Building
56	B-04	Inmate Housing, Unit A	1924	Contributing Building
56	B-05	Inmate Housing, Unit B	1920	Contributing Building
69	B-06	Gymnasium and Passageway	1976	Noncontributing Building
56	B-07	Inmate Housing, Unit D	1904/1905	Contributing Building
56	B-08	Inmate Housing, Unit C	1904	Contributing Building
68	B-09	Education	1963	Noncontributing Building
57	B-10	Laundry/ Safety	1904	Contributing Building
58	B-11	Isolation	1905	Contributing Building
59	B-12	West Store Room/Food Service Store	1939	Contributing Building
60	B-13	Food Service	1906	Contributing Building
60	B-14	Dining Hall	1906	Contributing Building
60	B-15	Auditorium/ Chapel	1909	Contributing Building
60	B-16	Refrigeration Building	1971	Noncontributing Building
61	B-17	Hospital	1941	Contributing Building
	B-17a	Electrical Substation	Unknown	Noncontributing Building
	B-17b	Storage Shed	Unknown	Noncontributing Building
62	B-18	Special Housing Unit	1988	Noncontributing Building
63	B-19	Maintenance Shop/CMS	1938	Contributing Building
64	B-20	UNICOR Lumber Storage	1955	Noncontributing Building
65	B-21	UNICOR Industries Complex	1926/ca.1936	Contributing Building
66	B-22	UNICOR Paint Shop/Chemical Storage	1933	Contributing Building
	B-23a	West Yard Shack	1955	Noncontributing Building
	B-23b	New East Yard Shack	1983	Noncontributing Building
67	B-25	Recreation Pavilion	1939/ca.1965	Noncontributing Building
70	B-26a	Rear Sallyport	1916/1937	Contributing Structure

TABLE III-8 (CONTINUED)
PROPERTIES SURVEYED – USP LEAVENWORTH HISTORIC DISTRICT

BLDG. No.	HSR BLDG. No.	Name	Date	Status
70	B-26b	Rope House	1952	Noncontributing Building
	B-26c	Garden Tool Shed	Pre-1938	Contributing Building
	B-27	Tunnels	1922/1929	Noncontributing Structure
6	N/A	Superintendent of Farm's Residence/ Associate Warden's Residence	1912	Contributing Building
7	N/A	Deputy Warden's Residence	1906	Contributing Building
1	N/A	Physician's Residence/Chief Medical Officer's Residence	1924	Contributing Building
47	N/A	Cemetery, including walls, grave markers, U.S.P. markers, and entrance features	ca. 1903	Contributing Building
12	N/A	2 Bedroom Staff Residence	ca. 1937	Contributing Building
13		4 Bedroom Staff Residence	ca. 1937	Contributing Building
14		5 Bedroom Staff Residence	ca. 1937	Contributing Building
15		2 Bedroom Staff Residence	ca. 1937	Contributing Building
16		2 Bedroom Staff Residence	ca. 1937	Contributing Building
16		2 Bedroom Staff Residence	ca. 1937	Contributing Building
17		2 Bedroom Staff Residence	ca. 1937	Contributing Building
17		2 Bedroom Staff Residence	ca. 1937	Contributing Building
18		2 Bedroom Staff Residence	ca. 1937	Contributing Building
18		2 Bedroom Staff Residence	ca. 1937	Contributing Building
20		2 Bedroom Staff Residence	ca. 1937	Contributing Building
21		3 Bedroom Staff Residence	ca. 1937	Contributing Building
22		2 Bedroom Staff Residence	ca. 1937	Contributing Building
23		3 Bedroom Staff Residence	ca. 1937	Contributing Building
24		2 Bedroom Staff Residence	ca. 1937	Contributing Building
25		3 Bedroom Staff Residence	ca. 1937	Contributing Building
26		4 Bedroom Staff Residence	ca. 1937	Contributing Building
	N/A	Railroad Tracks	1915	Contributing Structure
3	C-1	Armory	1982	Noncontributing Building
2	C-2	Physical Fitness Center/Warden's Residence	1906	Contributing Building
9	C-3	Receiving Depot	1991	Noncontributing Building
11	C-4	Disturbance Control/Command Center	1920	Contributing Building
46	C-5a	FPC Gymnasium	1980	Noncontributing Building
46	C-5b	FPC Inmate Housing	1960	Contributing Building

TABLE III-8 (CONTINUED)
PROPERTIES SURVEYED – USP LEAVENWORTH HISTORIC DISTRICT

BLDG. No.	HSR BLDG. No.	Name	Date	Status
46	C-5c	FPC Inmate Services	1960	Contributing Building
	C-5d	FPC Weight Pavilion	Unknown	Non-Extant
46	C-6	FPC Entrance	1961	Non-contributing Building
27	C-7	Garage	1962	Contributing Building
28	C-8	Plumbing Shop/Industrial Warehouse	1937	Contributing Building
29	C-9	UNICOR Warehouse/Receiving Depot	1956	Contributing Building
30	C-10	UNICOR Raw Material Storage	1982	Noncontributing Building
31	C-11	Salvage Depot	1943	Contributing Building
32	C-12	UNICOR Warehouse	Pre-1938	Contributing Building
33	C-13	UNICOR Old Cement Storage Shed	Pre-1938	Contributing Building
	C-14	Oil Tanks	Unknown	Non-Extant
73	C-15	Chemical Storage	ca. 1952	Contributing Building
34	C-16	Power Plant/Generator Room	1952	Contributing Building
74	C-16a	Electrical Equipment Shed	ca. 1970	Noncontributing Building
35	C-17	HVAC Shop	1943	Contributing Building
36	C-18	Landscape Storage Building	1921	Contributing Building
75	C-18a	Landscape Storage Shed	ca. 1960	Contributing Building
37	C-19	Dry Storage	1961	Non-contributing Building
38	C-20	UNICOR Industries Office/Depot	1981	Noncontributing Building
39	C-21	UNICOR Storage Shed	1950	Contributing Building
41	C-22	Regional Emergency Preparedness Warehouse	1961	Non-contributing Building
40	C-23	Maintenance Building/Dairy Barn	1903/1917	Contributing Building
75	C-23a	Maintenance Store 1	ca. 2000	Non-contributing Building
76	C-23b	Maintenance Store 2	ca. 2000	Non-contributing Building
42	C-24	Project Office/Dairy Barn/Mule Shed	1903	Contributing Building
43	C-25	Fire House/Landscape Maintenance	1931	Contributing Building
44	C-26	Radio Tower	ca. 1990	Noncontributing Building
	C-27-1	Guard Tower #1	1940	Contributing Building
	C-27-2	Guard Tower #2	1971	Noncontributing Building
	C-27-3	Guard Tower #3	1938	Contributing Building
	C-27-4	Guard Tower #4 (not including wall)	Pre-1916	Contributing Building
	C-27-5	Guard Tower #5 (not including wall)	1904/1938	Contributing Building

TABLE III-8 (CONTINUED)
PROPERTIES SURVEYED – USP LEAVENWORTH HISTORIC DISTRICT

BLDG. No.	HSR BLDG. No.	Name	Date	Status
	C-27-6	Guard Tower #6	1994	Noncontributing Building
	C-27-7	Guard Tower #7	1971	Noncontributing Building
48	C-28	Staff Training Center	1939	Contributing Building
49	C-28A	Pool House	ca. 1960	Contributing Building
54	C-28B	Pavilion 1	ca. 1970	Noncontributing Building
54	C-28C	Pavilion 2	ca. 1970	Noncontributing Building
50	C-28D	Weapons Cleaning Center	1948	Contributing Building
77	C-28-E	Target Store	1948	Contributing Building
51	C-28G	Practice Tower	ca. 1970	Noncontributing Building
52	C-28H	Firing Range Shed	ca. 1970	Noncontributing Building
53	C-28K	Firing Range Observation Tower	1948	Contributing Building
45	C-29	FCP Lift Station	1961	Non-contributing Building
8	C-30	Lift Station # 1	1995	Noncontributing Building
72		Concrete Pillbox Bunker	ca. 1920	Contributing Building
55		Captain's Residence	1960	Contributing Building
9		Outside Food Service Warehouse	ca. 2008	Noncontributing Building
5		Shelter (Along Main Drive)	ca. 2006	Noncontributing Building
71		Sheds and Tank (East of Power Plant)	ca. 2006	Noncontributing Building
78		Outdoor Grill Structures	ca. 1935	Contributing Structures
79		Storm Sewer Line	ca. 1900	Contributing Structure

dormitory and continued their farming operations at USP Leavenworth and the prison farm in Missouri until 1980 when prison farm operations nationwide were eliminated. Thus, LBG recommends that the period of significance be extended to 1960 to include this structure. Table III-8 lists the proposed contributing/non-contributing status of buildings and structures within the district.

The historic district boundary proposed by BELLArchitects included only the buildings and the Buffalo Pasture area; not any open areas to the north and east. The boundary of the historic district should be expanded to include the surrounding open areas. This would provide a more clearly defined historic district boundary that includes areas historically associated with the USP. The proposed boundary for

the historic district would follow the USP Leavenworth property boundary on the west, north, and east sides, and Metropolitan Avenue/US 73 on the south side.

Most of the buildings have a moderate to high degree of integrity with only minor modifications to windows. Brick is a predominant building material for buildings constructed up into the mid-twentieth century. All four residences on the south lawn of the USP are constructed of brick. Five of the 14 staff houses, constructed with Public Works Administration (PWA) funds, are frame construction; the remainder constructed of brick. There are several movable wood frame sheds in various locations around the USP.

2. Potential Impacts and Mitigation

a. Archaeology

Selection of Alternative FCI East-1 will result in direct impacts to previously recorded archaeological sites 14LV110, 14LV111, 14LV364, and 14LV366 as well as to newly recorded archaeological sites 14LV176 and 14LV181 and to isolated find spots IF-8 and IF-9.

Selection of the Alternative Composite option will result in direct impacts to previously recorded archaeological sites 14LV110, 14LV111, 14LV364, and 14LV366 as well as to newly recorded archaeological sites 14LV171, 14LV176, 14LV178, and 14LV181 and to isolated find spots IF-8 and IF-9.

LBG recommended archaeological sites 14LV169, 14LV171, 14LV172, 14LV176, and 14LV181 as potentially eligible for listing in the NRHP (Table III-9), and the SHPO has concurred with this finding. If any of these five archaeological sites are to be effected by ground-disturbance activities and reviewing agencies concur that these sites are potentially National Register eligible, then a site evaluation will be performed at the site(s) to determine whether the site(s) has sufficient integrity and materials to address important research questions, such as the age of the site, the cultural group associated with the site, the primary activities that occurred at the site (i.e., tool-making, food collection or processing), whether the occupation was a temporary camp or a habitation site, or the season in which the site was occupied. Site evaluations will be planned in consultation with SHPO. A report of the findings was submitted to the BOP and SHPO for review (see Appendix D). Maps depicting the locations of archaeological sites have only been shared with the Kansas SHPO at its request and in the interest of protecting the integrity and content of such sites.

No further archaeological studies are recommended for archaeological sites 14LV110, 14LV111, 14LV337, 14LV364, 14LV365, 14LV366, 14LV168, 14LV170, 14LV173, 14LV174, 14LV175, 14LV177, 14LV178, 14LV179 or 14LV180, or at isolated find spots IF-1 through IF-15.

Should artifacts or other evidence of unrecorded cultural resources be discovered during the course of project construction, the Kansas SHPO will be notified so that the potential significance and NRHP eligibility of such resources can be adequately evaluated.

b. Architecture

Comparison of the two alternatives with the USP Leavenworth Historic District reveals that both alternatives will adversely affect contributing staff housing along Metropolitan Avenue, as they will have to be demolished to make way for an access road. The proposed access road for the Composite site

TABLE III-9
ARCHAEOLOGICAL SITE IMPACTS SUMMARY TABLE

Field Site Number	Project Location	Site Type	Preliminary NRHP Recommendation	Impacts by Alternative
14LV110	East Site	Dump	Not Eligible	Alt.FCI East-1: No Adverse Effect Alt. Composite: No Adverse Effect
14LV111	East Site	Isolated Find	Not Eligible	Alt. FCI East-1: No Adverse Effect Alt. Composite: No Adverse Effect
14LV364	East Site	Lithic Scatter	Not Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect
14LV366	East Site	Lithic Scatter	Not Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect
14LV170	West Site	Lithic Scatter	Not Eligible	Alt. FCI East-1: Avoided Alt. Composite: Avoided
14LV171	West Site	Camp 2 Sherds and Lithic Scatter	Potentially Eligible	Alt. FCI East-1: Avoided Alt. Composite: Potential Adverse Effect
14LV176	East Site	Lithic Scatter	Potentially Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect
14LV178	West Site	Lithic Scatter	Not Eligible	Alt. FCI East-1: Avoided Alt. Composite: Potential Adverse Effect
14LV181	East Site	Lithic Scatter	Potentially Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect
IF-8	East Site	Isolated Find (1 Debitage)	Not Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect
IF-9	East Site	Isolated Find (1 Debitage)	Not Eligible	Alt. FCI East-1: Potential Adverse Effect Alt. Composite: Potential Adverse Effect

plan alternative will only directly impact two staff duplexes (#17 and 18). Construction of the FPC in Alternative FCI East-1 will directly impact the same two duplexes and four additional staff residences.

The FPC in the Alternative Composite will directly impact a non-contributing lift station (#45). The access road in the Composite Alternative causes the least impact to the historic district, necessitating the demolition of only two staff duplexes. Removal of these structures will adversely affect the integrity of the historic district's design, workmanship, and feeling. Construction of the FCI in open areas will diminish the district's integrity of design, setting, and feeling.

As noted above, demolition of contributing structures within the historic district for construction of the proposed project would constitute an adverse effect. Consequently, measures to mitigate any potential adverse impacts to architectural resources would be recommended. BOP will consult with SHPO on appropriate mitigation measures, which may include Historic American Building Survey (HABS) documentation of removed buildings or structures.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at the USP in Leavenworth. Hence, impacts to cultural resources would not occur and mitigation would not be warranted.

H. HAZARDOUS MATERIALS

1. Existing Conditions

The East and West Sites have been the subject of a Phase I Environmental Site Assessment (ESA). The purpose of the Phase I ESA was to identify the presence of any Recognized Environmental Conditions (RECs), Business Environmental Risks and/or Historical Recognized Environmental Conditions as defined by ASTM International (ASTM) Standard Practice E1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, with respect to the East and West Sites. Recognized Environmental Conditions are the presence or likely presence of any hazardous or petroleum products under conditions that indicate an existing release, a past release or a material threat of release of such substances onto a subject property. A Business Environmental Risk is a risk which can have a material environment or environmentally-driven impact on the business associated with the current or planned used of a property. Site screening, the precursor to preparation of ASTM Phase I Environmental Site Assessments (ESA), comprised visual inspections of both sites, including a visual inspection of the exteriors of structures present on the sites; a review of historical aerial photographs of the sites; a review and evaluation of local, state and federal environmental databases containing information on each site; and interviews with appropriate public officials regarding past uses of the sites.

The search of available environmental records was obtained from Environmental Data Resources, Inc. (EDR). The database search was intended to meet the search requirements of the U.S. Environmental Protection Agency's Standards and Practices for all Appropriate Inquiries (40 CFR Part 312) and ASTM Standard E1527-05. The review and evaluation of local, state and federal databases included the National Priorities List, CERCLIS List, CERCLIS-NFRAP List, RCRA TSD List, RCRA Generators List, RCRA CORRACTS List, ERNS List, and various State of Kansas databases as described in LBG's Phase I ESA (Appendix G).

a. Hazardous Materials Investigations at USP Leavenworth

The East Site and West Site are located within the larger USP property and have been affected to some extent by hazardous materials use at the main USP. The main USP Leavenworth is located between the East and West Sites, and includes the walled USP facility and multiple outlying support structures. Facilities located immediately adjacent to the East Site, outside of the USP walls, include a UNICOR (Prison Industries) warehouse where UNICOR products (currently textiles) are kept and computer equipment is disassembled for recycling; and a gasoline filling station.

As described in LBG's Phase I ESA, multiple waste disposal landfill sites are located on Fort Leavenworth, north of the USP. Army maps showing the locations of these landfill sites include what appears to be within the hazardous waste disposal site Area B (described below) on the main USP Leavenworth. The remaining waste sites at Fort Leavenworth are located opposite Corral Creek, which forms a natural drainage divide between the Army Base and the USP. There is no known evidence that contamination from Fort Leavenworth has migrated to the East Site or the West Site.

Extensive environmental investigations have been conducted since 1984 at the USP Leavenworth, including the East Site and West Site, as described below. These investigations identified several current and historical industrial operations that produce or may have produced hazardous materials at USP Leavenworth. These operations include a furniture factory, brush factory, printing factory, vehicle maintenance shop, and landscaping department. These operations generated varying quantities of waste oils, spent solvents, auto part cleaning agents, lacquer thinners, paint, stored polychlorinated biphenyl (PCB)-contaminated transformers, gasoline, and rinsed empty pesticide containers. The USP Leavenworth is currently classified as a Resource Conservation and Recovery Act (RCRA) Small-Quantity Generator, generating less than 1,000 kilograms of hazardous waste per month.

The state of Kansas registered underground storage tanks (USTs) database includes the USP Leavenworth. Current USTs on the USP include one 3,000-gallon diesel UST and one 5,000-gallon fuel oil UST located at the vehicle maintenance building. Fuel oil for use in the USP Leavenworth emergency generator is stored in two aboveground storage tanks (ASTs), totaling 450,000 gallons, that are located adjacent to the USP Power Plant. A 12,000-gallon No. 2 fuel oil AST is also currently located on the main USP as a backup fuel source for the USP Powerhouse.

There are several identified hazardous waste disposal sites on the USP Leavenworth property that are recognized by the KDHE and have been investigated and monitored since 1991 (Exhibit III-8). The hazardous waste sites identified at the USP during these investigations have been grouped into three larger hazardous waste sites. These sites are identified as Areas A, B and C. These hazardous waste sites are further described as follows:

- Area A includes the paint can disposal area ("Site 1"), trench burial area ("Site 2") and waste oil dumping area ("Site 8"). Pond 1 and Pond 2, also known as "Subsites 3.1 and 3.2", were grouped with Area A, although located separately to the north. Area A and Ponds 1 and 2 are located largely within the limits of the East Site.

- Area B includes the north sanitary landfill ("Site 4"), fuel oil spill ("Site 7"), Building 80 ("Site 5") and east yard hot barrel site. Ponds 3, 4 and 5, also known as "Subsites 3.3, 3.4 and 3.5", are located within Area B. The east yard hot barrel site and Building 80 were later designated as Area B-1. Area B/B-1 is located directly north of the existing USP facility and between the East Site and West Site.

- Area C includes the cemetery landfill ("Site 6") and hot barrel site at the shale pits ("Site 9b"). The hot barrel site at the shale pit was later designated as Area C-1. Site C/C-1 is located west of the prison camp and Santa Fe Trail, near the USP training facility and cemetery.

The most recent monitoring in 2008 indicated that no groundwater contaminants were detected at levels above state clean-up criteria and that no groundwater contamination appears to be migrating off of the USP property. The hydraulic conductivity of the surficial geologic strata was determined to be very low across the USP property. Groundwater movement was determined to vary across the USP property and to be generally northeasterly at Area A, northerly at Area B and southerly at Area C. The next scheduled groundwater monitoring was for May/June 2011.

Remedial actions were taken following KDHE review of investigation reports and preparation of a Removal Action Decision Document in 1996. The following remedial actions were taken:

- Clay barriers were added to the waste disposal areas.

- Dams were reconstructed or newly constructed for associated ponds.

- A sediment retention system was constructed consisting of surface cover added to landfills in Areas A and B. Ponds 1, 3, 4, 5 and 7, located in Areas A, B and C, were reconstructed to eliminate potential aquatic life and provide retention of surface water.

- Prevention of access to the site via 24-hour security patrols, guarded observation towers and a chain-link fence around the entire facility.

- Establishment of the groundwater and surface water monitoring program. The KDHE has requested a 30-year monitoring plan, with groundwater samples to be collected on a schedule of 1, 2, 4, 7, 10, 15, 20, 25 and 30 years.

Groundwater monitoring at the USP Leavenworth property has indicated that contaminants have not migrated from Areas B/B-1 or C/C-1. Therefore, releases of hazardous materials at these sites are not expected to affect the East Site or West Site.

b. East Site

The East Site has been the subject of previous subsurface investigations, as described above. Field inspections were conducted at the East Site on January 18 and 19, 2011. Photographs taken during the site visits were included in the *Phase I ESA Report*.

There are gullies transecting the East Site through which surface water drains. Some dumping of brush and construction debris (brick and concrete) was observed in the gullies. Two piles of dirt, apparent "borrow piles" for minor construction projects at the USP, were observed north of the residences on the East Site. Some litter was observed along the banks of Corral Creek on the northern boundary of the East Site, but no major dumping was observed. Groundwater monitoring wells from previous subsurface investigations were observed on portions of the East Site.

The only structures on the East Site are the BOP residences located along the southern boundary of the East Site on Metropolitan Avenue. These houses are grouped in three clusters and some have storage sheds in the rear. The interiors of these buildings were not inspected; however, the only hazardous

materials expected to be contained in the residences are typical household cleaners, paints and incidental amounts of petroleum products such as motor oil.

c. West Site

The southern portion of the West Site is dominated by the Buffalo Pasture, which is an enclosed paddock housing 10 to 20 bison that are attended to by inmates and BOP personnel. The West Site is partially occupied by the FPC, which has two main structures, the original dormitory structure and the newer Visitors' Center. There is also a sewage lift station that serves the FPC, which is located southeast of the two main structures.

The main FPC building includes dormitory halls, a kitchen and dining hall, recreational rooms and office space. The FPC kitchen contains a 200-gallon grease trap that is pumped out by an outside contractor on a quarterly basis. Floor drains in the kitchen discharge to the wastewater system. Refrigeration storage units are located on the exterior of the main FPC building. Solid waste is transported off-site by a private contractor to the Leavenworth municipal landfill. The basement of the main FPC building contains utility piping and electrical equipment. The heat for both FPC buildings is supplied by steam from the existing USP Powerhouse.

2. Potential Impacts and Mitigation

a. Potential Impacts

Activities associated with the construction of each correctional facility would require the use and storage of potentially hazardous materials (e.g., solvents, fuel oil, lubricants, etc.). To avoid potential releases of such materials into the environment, a temporary staging area would be designated at each facility construction site for the storage and handling of such materials. Stored materials would be removed from such areas by authorized personnel only, and removals would be recorded by on-site personnel overseeing the construction of each institution. Liquid storage areas would have secondary containment systems in place to reduce the risk of potential spillage. The storage of hazardous materials on-site during construction periods would be minimized or avoided where practicable (e.g., fuel oil for construction and other equipment would be transported to the site by fuel trucks as needed).

Wastes considered hazardous that are generated during construction (i.e., fuel oils, lubricants, solvents, etc.) would be handled, stored and disposed of in accordance with federal and other applicable regulations. The amount of waste generated during correctional facility construction and operation should have no significant impact on the ability or availability of waste handlers to collect and properly dispose of such wastes.

The types and quantities of any hazardous wastes generated during facility operation are often dependent upon the nature and scale of the UNICOR-run prison industry to be located at the new correctional facility. Hazardous wastes generated at other federal prison industries typically consist of spent lubricants and solvents and, in general, represent a small portion of the overall volume of wastes generated at a federal correctional facility. Such wastes would be handled, stored and disposed of in accordance with federal and other applicable regulations, and therefore, correctional facility operation would not result in significant adverse impacts. In addition, the volume of hazardous wastes generated during correctional facility operation should have no significant impact on the ability or availability of waste handlers to collect and properly dispose of such wastes.

Potential Impacts - FCI East-1

As described in the *Phase I ESA Report*, the Recognized Environmental Conditions identified would warrant further action depending on the development site selected for the proposed new facilities. A Phase I ESA normally results in a recommendation as to whether a Phase II ESA (i.e., subsurface investigation) is necessary. In the case of the FCI East-1 alternative, extensive subsurface investigations have already been conducted as part of larger environmental investigations and remediation on the main USP Leavenworth property. Because of the long history of on-site waste disposal, some additional subsurface investigations in advance of potential construction should be considered.

Development of the FCI East-1 alternative would likely include draining and filling of the two surface water ponds on the East Site. In addition to wetland permitting requirements for draining the ponds, these ponds constitute a portion of the hazardous waste sites on the main USP property that are undergoing remediation and monitoring under KDHE oversight. Management and/or remediation of sediments from these ponds would likely be required by KDHE prior to the development and reuse of these portions of the East Site. Consequently, the BOP will collect additional sediment quality data as needed to determine the volume of potentially contaminated sediments that would require management during construction. The data would be collected by advancing a series of borings through the pond sediments and performing laboratory analysis on sediment samples for environmental quality parameters including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, metals and total petroleum hydrocarbons.

The KDHE has indicated that it does not allow construction over "Closed Solid Waste Sites". Area A on the East Site is considered a Closed Solid Waste Site because of historical waste disposal in this area. The concerns related to construction over a landfill site are generation of methane or other hazardous gases as well as ground subsidence. Construction could also damage clay caps constructed over these areas as a remedial measure to prevent rainwater from percolating through waste materials. The KDHE has indicated that should construction expose any wastes, these wastes must be transported to and disposed of at a KDHE-approved landfill.

The KDHE does not have any survey data reflecting legal limits of the USP Leavenworth hazardous waste sites; there is no deed restriction or Activity and Use Limitation with an attached legal survey description. Therefore, the locations of Areas A, B and C as shown on Exhibit III-8 are approximate, as transferred from previous reports and plans.

The proposed development of the FCI East-1 alternative includes portions of the designated hazardous waste site Area A, and therefore it would be done in coordination with the KDHE in order to avoid the disturbance of buried waste materials or landfill cap areas. A program of subsurface exploration near the western and southern extent of the proposed FCI East-1 alternative development will be conducted to ensure that no buried hazardous materials are present in this area that would present health and safety issues during construction, or potential methane generation and vapor intrusion issues following construction.

In developing the FCI East-1 alternative, including Area A, a geophysical survey using ground-penetrating radar (GPR) will be conducted within the limits of the proposed FCI and/or FPC layout to determine whether buried materials are present that may hinder construction. Following the GPR study, several soil borings should be advanced within the proposed building footprints to collect representative environmental soil and groundwater data. Both the geophysical survey and soil boring program will include areas such as parking lots, roads, and other non-building areas.

Potential Impacts – East/West Composite Alternative

Under the East/West Composite Alternative, the FCI would be developed on the East Site and the FPC would be developed on the West Site. Such Composite Alternative was actually proposed/developed by BOP in order to further minimize potential hazardous waste impacts on the East Site. As noted above under the FCI East-1 Alternative, the majority of the anticipated ground disturbances to the designated hazardous waste site Area A would actually be associated with the siting/construction of a new FPC adjacent to the proposed FCI.

Therefore, and having said that, it is then anticipated that the Development of the East/West Composite Alternative would require similar consideration and coordination with KDHE for the construction of the FCI on the East Site (even though ground disturbances to the designated hazardous waste site Area A would be to a lesser extent).

As for the construction of the FPC on the West Site, the proposed construction activities and related ground disturbances would present fewer issues with respect to hazardous waste disposal since the West Site is located outside of designated hazardous waste areas. Under the East/West Composite Alternative, the existing FPC would remain as-is and would not be demolished since the new FPC would be built next to it and across the internal service road. However and should demolition of the existing FPC be identified at a later time, such demolition activities would require proper management of demolition debris, including ACBMs, lead-based paint and any additional hazardous building materials located in the FPC structures.

Although extensive subsurface investigations, which have been conducted at the USP since 1991, have not identified any contamination issues in area of the West Site, BOP will collect site-specific soil and groundwater environmental data in the footprint of the proposed facilities prior to development of the West Site.

Prior to advancement of soil borings on the West Site, a geophysical survey using GPR would be conducted within the limits of the proposed FPC layout to determine whether buried materials are present that may hinder construction. Following the GPR study, several soil borings would be advanced within the proposed building footprints to collect representative environmental soil and groundwater data. The data collected during the subsurface investigation will be used to develop a soil management plan for use during construction activities.

b. Recommended Mitigation

In the absence of potential adverse impacts, no mitigation measures would be warranted. However, in the event the sampling program reveals the presence of hazardous materials exceeding acceptable limits within the preferred site, remediation measures will be proposed and implemented prior to correctional facility construction.

c. No Action Alternative

Under the No Action Alternative, the proposed FPC and FCI would not be developed at any of the alternative sites. Hence, the sites would remain in their current condition, there would be no concern over encountering hazardous materials or generating hazardous materials during FCC construction and operation, and no mitigation would be required. Current remedial measures would remain in place and groundwater monitoring would continue as scheduled.

I. FISCAL CONSIDERATIONS

1. Existing Conditions

Fiscal considerations associated with federal actions, such as the proposed development of additional federal correctional facilities in Leavenworth, are of interest to local governments due to the potential loss of property tax revenues. In this case, the property has been under BOP ownership for many years and is, therefore, exempt from property tax payments.

2. Potential Impacts and Mitigation

a. Potential Impacts

Fiscal considerations are those having to do with the public treasury or revenues. Potential fiscal impacts could include: removal of the lands comprising the project site from the public tax rolls, acquisition of the project site through the use of public funds, and other public expenditures related to the proposed action (e.g., infrastructure extensions and improvements, etc.). Fiscal considerations are of particular interest to local governments due to the possible loss of property tax revenues since the BOP is not legally permitted to pay property taxes or make any other payments to local governments for federal institutions or facilities.

The USP Leavenworth property has been in federal ownership for a number of years and has been in exempt from tax payments. Therefore, FCI and FPC development will result in no direct loss of tax revenue to the City of Leavenworth, Leavenworth County or the State of Kansas. Conversely, positive fiscal impact will result from the economic benefits derived from the facility's construction and operational phases, as well as from multiplier effects caused by the increased economic activity generated by the facility and its employees. Expenditures for utility services and related expenses are recouped through the BOP's payment of user fees and, therefore, have no net impact.

b. Recommended Mitigation

Because overall fiscal impacts are beneficial, no mitigating measures are required.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at USP Leavenworth. Hence, there would be no fiscal impact and no mitigation measures would be necessary.

J. VISUAL AND AESTHETIC RESOURCES

1. Existing Conditions

Locally nicknamed "The Big Top" because of its distinctive central building with an elevated domed structure, USP Leavenworth is the dominant feature within the project area's viewshed. Its design, known as the Auburn Federal Style, is visually unique as it characterizes one of the three first designs of USPs in the early 1900s. It has been the subject of several U.S. pictorial history publications and remains a distinguishing feature that contributes to the broader landscape of the Leavenworth area.

Within the project area's viewshed, the other dominant features include the rolling hills (within the western portion of the USP Leavenworth property where a cemetery and Warden's house are located) as well as the corridor of Metropolitan Avenue, which distinctively separates the BOP and U.S. Army federal properties from the rest of Leavenworth. Metropolitan Avenue, with is four travel lanes, is located directly south of the BOP-owned USP Leavenworth property. Both Metropolitan Avenue, along with its sidewalk and buffalo viewing area (near the new interchange of Metropolitan Avenue and 20th Street), and Santa Fe Trail are the only publicly-accessible locations where the whole USP Leavenworth property (including its dominating central building as well as the East and West Sites) can be directly seen; thus defining the vehicle travelers and pedestrians as the sole sensitive view groups that could be affected by the proposed project.

Photo 1: Big Top

Aesthetic features of the East Site are dominated by uneven topography which is bisected by several drainageways. The riparian zones of the drainageways are lined with trees and shrubs. Two relatively large surface water features are present on the East Site: the first is located near the northern boundary of the site near the wooded area associated with Corral Creek; the second is situated near the central portion of the East Site. Views of the East Site from Grant Avenue (including from Eisenhower Elementary and Patton Junior High Schools), which abuts the eastern boundary of the East Site, are obstructed by the tree line that parallels Grant Avenue. Views of the East Site from the south (Metropolitan Avenue) are somewhat obstructed by staff housing and vegetation while views from Fort Leavenworth's Frontier Heritage Community and Bradley Elementary School are obstructed by the riparian forest that borders Corral Creek.

Aesthetic features of the West Site are relatively insignificant since its grounds are fairly level and regularly maintained. The dominant features include the existing FPC and adjacent buffalo pasture. While the West Site has unobstructed views from Metropolitan Avenue or Santa Fe Trail, the small buildings comprising the FPC and the Buffalo pasture are dwarfed by the abutting central building of USP Leavenworth.

While the view groups from Fort Leavenworth might not be considered sensitive because those locations are not publicly accessible, they have still been given consideration in this evaluation in order for the BOP to make sure that the military families would not be unfairly affected by the proposed project.

2. Potential Impacts and Mitigation

Under the proposed project and regardless of its build alternatives (East-1 and East/West Composite), the proposed FCI would visually be the most dominant new structural feature when compared to the smaller structure of the proposed FPC. In addition, the FCI, under either alternative, would be constructed on the East Site. To that end, the following discussion is principally articulated around the potential visual impacts associated with the FCI in the East Site. For example, the FPC whether located on the East Site or West Site would visually be insignificant as it would be dwarfed in comparison to the new FCI and/or the existing USP central building.


Photos 2, 3: Views (looking westward) of East Site with Existing USP in Background


Photos 4, 5: Views (looking northward) of East Site from Metropolitan Avenue with Housing Staff in the Foreground


Photos 6, 7: Views (looking eastward, including from Santa Fe Trail) of West Site with Existing USP in Background


Photos 8, 9: Views of USP Leavenworth from Western Portion of Metropolitan Avenue (across from West Site)


Photos 10, 11, 12: Views of USP Leavenworth from Fort Leavenworth's (i) Bradley Elementary School, (ii) Frontier Heritage Community, (iii) Grant Avenue near Eisenhower Elementary and Patton Junior High Schools

a. Potential Impacts

Under either alternative, immediately following the onset of construction, the East Site would be disrupted. Throughout the construction period, the visual and aesthetic characteristics of the property undergoing additional development would be temporarily altered by the use of construction equipment to perform site preparation, the delivery and stockpiling of construction materials and equipment, building construction, infrastructure installation, etc. The duration of such impacts would extend for the period of time devoted to facility construction (estimated at approximately 36 months).

The principal visual features of the FCI would comprise the inmate housing units; administrative, program, and support buildings; indoor and outdoor recreational facilities; internal roadways, parking areas, and pedestrian walkways; warehouses and similar storage structures; lighting fixtures, security fencing, and signs. The principal groupings associated with inmate housing, administrative structures, and support components, totaling approximately 500,000 square feet of floor area, would be organized as an overall architectural composition and would remain as permanent additions to the landscape.

The compact campus building arrangement would present a visually simplified and unified structural mass (or feature) that would be generally compatible with the adjoining property in terms of site arrangements, building scale and form, and materials. For example, the structures comprising the FCI would be primarily low-rise (one and two stories in height) and, to the degree feasible, be designed to be unobtrusive. Visually sensitive view groups (i.e., nearby public roadways, etc.) would be given attention during the final design process. As with the existing USP central building, internal roadways and parking areas would also be designed, constructed and maintained to a high standard.

As noted above, the proposed FCI would rise one to two stories in height, with high-mast lighting rising up to 100 feet above the ground surface. Following completion of construction, the visual and aesthetic characteristics of the northeastern portion of the USP Leavenworth property (albeit the East Site under either alternative) would be permanently changed from undeveloped upland grassland to an intensively developed area. Depending upon one's vantage point, portions of the proposed FCI would be within public view although the proposed facility would not be an unusual or unique feature in the area. Additionally, and similarly to existing conditions described above for the East Site, several views to the new FCI from adjacent properties (public roadways as well as the residential community of Fort Leavenworth) will continued to be obstructed by either natural or man-made features.

Potential visual and aesthetic impacts associated with FCI operation would primarily result from the use of lighting equipment needed to illuminate the grounds, parking lots and internal access roads. These lights would be both building- and pole-mounted and would provide a minimum of 1.5 foot-candles of illumination within and immediately surrounding the grounds of the FCI. Typical lighting standards for FCIs involve 100-foot tall poles with high-pressure sodium and metal halide fixtures. Pole height and the mix of light sources used to illuminate the secure compound of the facility are selected for the ability to relight the institution quickly in the event of a power outage. Similar lighting standards are not a requirement of the adjoining support areas. Although nighttime operation of the proposed FCI would be visible from adjoining properties and roadways, the potential for adverse impacts would be minimized to the extent possible using the design features described below. During the scoping meeting, U.S. Army officials raised concerns about potential light pollution to the military family housings (Frontier Heritage Community) especially near the West Site given its proximity to such residences. Under the proposed project, there would no adverse light pollution to those residences since the security lights will be associated with the FCI located on the East Site. Within the East Site, the security lighting of the FCI would not have any adverse impact to the nearby military residences given the distance and wooded area associated with Corral Creek.

b. Recommended Mitigation

While no significant adverse impacts are anticipated under the proposed project, potential disturbances would be further minimized/mitigated by implementing design features that are sensitive to the unique visual resources of the Leavenworth County region. These features include a low-rise and compact development in a campus plan arrangement with undeveloped land to surround the facility and limit views from public roadways and adjoining properties.

It is recognized that the night sky is an important component of the visual and aesthetic environment and that operation of the FCI alone and in conjunction with the existing USP Leavenworth facility, would have the potential to impact the night sky. Presently, correctional facilities are not mandated by any codes or standards that address light pollution. While the precise details of the lighting plan to be employed at the project site have not yet been fully determined, BOP Technical Design Guidelines, Section 16521 - Exterior Lighting, for illumination presently incorporate many of the most effective measures to limit unwanted light. This includes use of full cutoff luminaries for all high-mast security lights which provide complete concealment of the light source above the rim of the fixture. By incorporating such fixtures, the light emitted is projected below the horizontal plane of the lowest point of the fixture and results in the maximum downlighting effects. Upward distribution of light from the high-mast lights into the sky is minimized. In addition to security lighting, the facility will employ typical parking lot and roadway lighting which also includes use of full cutoff luminaries to further minimize potential lighting impacts.

In recognition of the potential impacts associated with use of security lighting including impacts to the nighttime sky, the BOP has in the past performed independent analyses of its typical security lighting system. The purpose of the analysis was to identify additional measures which could be employed to further reduce potential impacts. While use of full cutoff luminaries on all fixtures would address most concerns over unwanted light, the analysis also produced recommendations for employing additional measures at new BOP facilities. The BOP will consider incorporating these additional measures during design of the lighting plan for the proposed FCI:

- Include the requirements for full cutoff fixtures for wall pack lighting in all applications.

- Use houseside shields on luminaries in which light trespass may be an issue. Houseside shields are not normally recommended for use at correctional facilities since spill light is beneficial to serve as transition lighting for security purposes.

- Employ low-reflectance surface materials where practical to minimize the upward reflection of light. An example of a low-reflectance surface material would be use of asphalt rather than concrete for parking areas, walkways, etc. The BOP already uses asphalt rather than concrete in areas which can function with that material.

Because the impacts to visual and aesthetic conditions resulting from development of the proposed FCI are not expected to result in significant adverse impacts, and given the quality approach undertaken in the past in the design, construction and operation of BOP institutions, no additional mitigation actions beyond sensitive architectural design, site planning, and the adherence to standards of quality for construction and maintenance of facilities and grounds would be required.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed at USP Leavenworth. Hence, there would be no changes to visual and aesthetic conditions and mitigation would not be warranted.

K. DEMOGRAPHICS

1. Existing Conditions

In order to gauge the potential effects of a project, the current demographic characteristics of the area are first established and potential demographic changes due to the project are then identified. A potentially significant adverse impact could result if a project would substantially alter the location, composition and distribution of the population or segment of the population within a given geographic area or cause the population to exceed historical growth rates. Because people would immigrate to the area to staff the FCI, the proposed project could affect demographics in the area by increasing the population. A worst case scenario would be realized if all immigrating staff settled in the area immediately surrounding the proposed project location; i.e., Leavenworth County, Kansas.

According to surveys conducted by the BOP[1], a majority of its employees preferred residing within a commuting time of 45 minutes to their place of employment as well as proximity to the spousal employment opportunities, shopping choices and other amenities available in larger metropolitan areas. As such, it is expected that the majority of BOP employees relocating to the area to staff the new facility will settle in areas close to the proposed facility and close to or in the nearest metropolitan area – Kansas City, Missouri.

The Primary Study Area selected for the analysis of potential impacts to demographic conditions includes Leavenworth County, Kansas, within which the new facility would be located, and the City of Leavenworth, situated directly south of the proposed facility. Because the Lansing is adjacent to the City of Leavenworth, and because development is uninterrupted when traveling from one to the other, demographic data for Lansing are included in the Primary Study Area.

Information concerning the place of residence of current USP Leavenworth employees was used to develop the Secondary Study Area. An analysis of residential Zip Code data revealed that approximately 65 percent of current employees of the USP and prison camp live in Kansas with the remaining 35 percent residing in Missouri. Of the total workforce, approximately 82.4 percent (314 of 381) currently reside in only five counties in the vicinity of the facility. These five counties comprise the Secondary Study Area and include Platte County, Buchanan County, and Jackson County in Missouri and Wyandotte County and Leavenworth County in Kansas.

a. Primary Study Area

Between 1990 and 2000, the population of the City of Leavenworth decreased eight percent to 35,420, and continued declining, although at a much slower rate, to 35,251 in the following decade. Conversely, the population of Lansing increased significantly during both decades, while the population of Leavenworth County increased steadily, although at a slower rate, during both decades (Table III-10).

[1] Federal Bureau of Prisons, *Employee Social Climate Survey,* 2008.

TABLE III-10
POPULATION TRENDS – PRIMARY STUDY AREA

	1990	2000	% Change	2010	% Change
City of Leavenworth	38,495	35,420	-8.0%	35,251	-0.5%
City of Lansing	7,120	9,199	29.2%	11,265	22.5%
Leavenworth County	64,371	68,691	6.7%	76,227	11.0%

Source: 2010 U.S. Census.

Of Leavenworth County's 2010 population, 35,761 (46.9 percent) were female and 40,466 persons (53.1 percent) were male (Table III-11). Also in 2010, 63,879 (83.8 percent) of Leavenworth County residents were White, 7,171 (9.4 percent); were Black or African American; 584 (0.8 percent) were American Indian; 965 (1.3 percent) were Asian; 1,116 (1.7 percent) were of some other race; and an additional 2,612 (3.3 percent) were of two or more races. Of the total population, 4,308 (5.7 percent) were of Hispanic or Latino origin.

TABLE III-11
2010 DEMOGRAPHIC CONDITIONS – PRIMARY STUDY AREA

	Leavenworth County		City of Lansing		City of Leavenworth	
	Total	% of Total	Total	% of Total	Total	% of Total
Population	76,227		11,265		35,251	
Female	35,761	46.9%	4,579	40.6%	16,261	46.1%
Male	40,466	53.1%	6,686	59.4%	18,990	53.9%
White	63,879	83.8%	9,040	80.2%	26,574	75.4%
Black	7,171	9.4%	1,492	13.2%	5,338	15.1%
American Indian	584	0.8%	91	0.8%	304	0.9%
Asian	965	1.3%	223	2.0%	622	1.8%
Other Race	1,116	1.7%	98	1.1%	795	3.0%
Two or More Races	2,512	3.3%	321	2.8%	1,618	4.6%
Hispanic* Origin	4,308	5.7%	578	5.1%	2,867	8.1%

Source: U.S. Census, 2010.
*Hispanic can be of any race.

The 2010 U.S. Census indicates that 5,187 persons (6.8 percent) in Leavenworth County were under the age of five; 15,711 (20.6 percent) ranged between five and 19 years of age; 14,433 (18.9 percent) ranged between 20 and 34 years of age; 17,427 (22.9 percent) were between 35 and 49 years of age; 15,043 (19.7 percent) were between 50 and 64 years of age; and 8,426 (11.1 percent) were 65 years or older (Table III-12).

The City of Leavenworth, the largest community located in Leavenworth County and the county seat, had a population of 35,251 in 2010. Of the 2010 population, 16,261 (approximately 46.1 percent) were female and 18,990 (53.9 percent) were male (Table III-11).

TABLE III-12
AGE CHARACTERISTICS – PRIMARY STUDY AREA

	Leavenworth County		City of Lansing		City of Leavenworth	
Age Group	Total	% of Total	Total	% of Total	Total	% of Total
All	76,227	100%	11,265	100%	35,251	100%
<5	5,187	6.8%	608	5.4%	2,859	8.1%
5 to 19	15,711	20.6%	2,193	19.5%	7,082	20.1%
20 to 34	14,433	18.9%	2,340	20.8%	7,805	22.1%
35 to 49	17,427	22.9%	2,945	26.1%	8,052	22.9%
50 to 64	15,043	19.7%	2,242	19.9%	5,924	16.8%
65 +	8,426	11.1%	937	8.3%	3,529	10.0%

Source: U.S. Census, 2010.

Of the City of Leavenworth's population in 2010, 26,574 (75.4 percent) were White; 5,338 (15.1 percent) were Black or African American; 304 (0.9 percent) were American Indian; 622 (1.8 percent) were Asian; 795 (3.0 percent) were of some other race; and an additional 1,618 (4.6 percent) were of two or more races. Of the total population, 2,867 (8.1 percent) were of Hispanic or Latino origin.

With respect to age, approximately 2,859 persons (8.1 percent) in the City of Leavenworth were under the age of five; 7,082 (20.1 percent) ranged between five and 19 years of age; 7,805 (22.1 percent) ranged between 20 and 34 years of age; 8,052 (22.9 percent) were between 35 and 49 years of age; 5,924 (16.8 percent) were between 50 and 64 years of age; and 3,529 (10.0 percent) were 65 years or older. The distribution of the populations of the cities of Leavenworth and Lansing and Leavenworth County are presented in Table III-12.

(Because educational attainment figures are not yet available from the 2010 U.S. Census, U.S. Census, 2009 American Community Survey figures are used in the following section). Approximately 33 percent (7,432) of the 22,595 persons 25 years of age or older in the City of Leavenworth had a high school diploma in 2009 (Table III-13). In Lansing, approximately 36 percent (2,513) had a high school diploma, and in Leavenworth County, approximately 34 percent (16,556) of the population 25 or older had a high school diploma (Table III-13). Of those 25 years and older residing in the City of Leavenworth, approximately 17.5 percent had a Bachelor's degree while in Leavenworth County the rate was 17.1 percent and 14.7 percent in Lansing.

TABLE III-13
EDUCATIONAL CHARACTERISTICS

	Leavenworth County		City of Lansing		City of Leavenworth	
	Total	% of Total	Total	% of Total	Total	% of Total
Population 25 years +	48,355	100%	6,994	100%	22,595	100%
High School Grad	16,556	34.2%	2,513	35.9%	7,432	32.9%
Associate's	3,930	8.1%	621	8.9%	1,677	7.4%
Bachelor's	8,249	17.1%	1,029	14.7%	3,957	17.5%
Master's	4,082	8.4%	594	8.5%	2,356	10.4%
Professional	570	1.2%	99	1.4%	177	0.8%
Doctorate	305	0.6%	31	0.4%	176	0.8%

Source: U.S. Census, American Community Survey.

b. Secondary Study Area

The Secondary Study Area consists of nearby counties that are more populated than other counties in eastern Kansas and western Missouri, and more likely to attract relocated BOP employees. Population trends show the greatest change occurring in Leavenworth County in Kansas and Platte County in Missouri, and a slight decreasing population in Wyandotte County, Kansas (Table III-14). Table III-15 presents the racial makeup of the population of the Secondary Study Area.

TABLE III-14
POPULATION TRENDS – SECONDARY STUDY AREA

County, State	1990	2000		2010	
	Total	Total	% Change	Total	% Change
Buchanan, MO	83,083	85,998	3.4%	89,408	3.8%
Jackson, MO	633,232	654,800	3.4%	674,158	2.9%
Leavenworth, KS	64,371	68,691	6.7%	76,227	9.9%
Platte, MO	57,867	73,781	27.5%	89,322	17.4%
Wyandotte, KS	161,993	157,882	-2.5%	157,505	-0.2%

Source: U.S. Census, 1990, 2000 and 2010.

2. Potential Impacts and Mitigation

a. Potential Impacts

Construction Phase

Construction of the proposed project has the potential to attract additional residents to region comprising eastern Kansas and western Missouri. Any potential increase in population during the construction phase is dependent on the duration of construction, the number of construction jobs created, and the ability of the local labor market to fill those positions. The schedule for development of the proposed FCI anticipates the start of design/construction in 2013, preliminary construction (site grading, site utilities, etc.) beginning in 2014, completion of construction in 2016, and facility activation and operation thereafter.

Many construction jobs would likely be filled by residents of the region. A small percentage of jobs (primarily managerial and supervisory positions) would likely be filled by individuals from outside this region who are assigned to the construction project and, therefore, would relocate to the project area on a temporary basis. Persons relocating to fill these positions would likely remain temporarily because of the limited period devoted to design/construction of the institution (estimated at 36 months) and the nature of the managerial and supervisory positions. The individuals who fill these positions are typically transferred to subsequent projects elsewhere following completion of construction and, as a result, family members of those in managerial and supervisory positions are less likely to relocate. As a result, permanent population impacts directly attributable to the FCI construction phase would be minimal. Lastly, with construction confined to the USP Leavenworth property, no sensitive population groups, (i.e., children, minorities, seniors, etc.) would be adversely affected during this phase.

TABLE III-15
2010 DEMOGRAPHIC CONDITIONS – SECONDARY STUDY AREA

County	Buchanan (Missouri)	Jackson (Missouri)	Leavenworth (Kansas)	Platte (Missouri)	Wyandotte (Kansas)	Total
Population	89,201	674,158	76,227	89,322	157,505	1,086,413
Female	44,615	348,305	35,761	45,362	79,803	553,846
Male	44,586	325,853	40,466	43,960	77,702	532,567
White	79,443 (89.1%)	451,073 (66.9%)	63,879 (83.8%)	77,914 (87.2%)	86,056 (54.6%)	758,365 (69.8%)
Black	4,662 (5.2%)	161,367 (23.9%)	7,171 (9.4%)	5,270 (5.9%)	39,742 (25.2%)	218,212 (20.1%)
American Indian or Alaskan Native	396 (0.4%)	3,352 (0.5%)	584 (0.8%)	449 (0.5%)	1,297 (0.8%)	6,078 (0.6%)
Asian	722 (0.8%)	10,755 (1.6%)	965 (1.3%)	2,051 (2.3%)	3,958 (2.5%)	18,451 (1.7%)
Native Hawaiian and Other Pacific Islander alone	185 (0.2%)	1,610 (0.2%)	101 (0.1%)	292 (0.3%)	169 (0.1%)	2,357 (0.2%)
Other Race	1,608 (1.8%)	25,315 (3.8%)	1,015 (1.3%)	1,152 (1.3%)	20,378 (12.9%)	49,468 (4.6%)
Two + Races	2,185 (2.4%)	20,686 (3.1%)	2,512 (3.3%)	2,194 (2.5%)	5,905 (3.7%)	33,482 (3.1%)
Hispanic* Origin	4,674 (5.2%)	56,434 (8.4%)	4,308 (5.7%)	4,424 (5.0%)	41,633 (26.4%)	111,473 (10.3%)

Source: U.S. Census, 2010.
*Hispanic can be of any race.

Operational Phase

Operation of the proposed FCI and FPC is expected to employ approximately 350 full-time workers. Approximately 60 percent of the staff complement (210 persons) would be new hires, while the remaining 40 percent (140 persons) would be current BOP employees transferred from other federal correctional facilities located nationwide. Transferring staff from other BOP facilities ensures that the new facility has a core group of experienced staff upon operation. Given the labor force and demographic characteristics of the greater Kansas City metropolitan area, it is reasonable to expect that approximately 30 percent of the 210 new hires, or 63 persons, would be current residents of this region. These 63 persons would not increase the demand for or otherwise affect the housing market or the need to provide community services or resource in the region.

Approximately 287 BOP employees (350 minus 63) would be new residents to the region. Based on experience at other BOP facilities nationwide, it can be anticipated that approximately eight percent of the anticipated FCI workforce, or 23 employees, would reside within the same household as another BOP employee. These employees have been factored out of the analysis to avoid double-counting. Therefore, approximately 264 households are expected to relocate into the region upon activation of the proposed project. Relocating BOP employees are expected to bring dependents when they relocate.

To account for these dependents (spouses/partners, children, other family members, etc.), a multiplier of 3.52 persons per household has been applied on the basis of employee household size data from the BOP's Employee Social Climate Survey which is considered more accurate than national estimates of average household size from the U.S. Census Profile of General Demographic Characteristics.

As a result of the proposed project, approximately 929 persons would be added to the region's total population following activation of the facility. Compared with the existing population, the additional 929 persons would increase the population of the Primary Study Area (76,227) by approximately 1.2 percent, and the Secondary Study Area (1,086,413) by approximately 0.08 percent.

As reported earlier, the population in the City of Leavenworth has declined by approximately 8.4 percent (3,244 persons) between 1990 and 2010, while the population of Lansing has increased approximately 58.2 percent over the same period and Leavenworth County experienced a population increase of approximately 18.4 percent. It is expected that the incoming population would settle throughout the greater Kansas City Metropolitan area. As such, predicting more specific settlements patterns is not possible. Impacts to housing markets, area schools, and community services resulting from the potential demographic impacts of the proposed project are discussed below.

Induced Population Impacts During the Construction and Operational Phases

Both the construction and operational phases would lead to changes in population demographics through in-migration of employees and dependents as well as greater population retention due to increased economic activity and employment opportunities. The 36-month FCI construction phase is expected to lead to the creation of temporary employment from both the direct hiring of construction workers along with the spin-off ("multiplier effects") of construction payrolls and material and supply purchases. While these impacts would last only for the duration of construction (approximately 36 months), induced population impacts during the operational phase would be continuous and long-term. A review of data concerning working age populations, labor forces, unemployment rates, and educational attainment suggests that there is an adequate labor pool within the Metropolitan region to support this secondary growth. Any resulting induced population impacts are expected to benefit the region.

Addition of Federal Inmates to the Resident Population

Federal inmates are currently considered to be residents of the area in which they are housed and are counted as such by the U.S. Census Bureau at the time of the decennial census. Therefore, federal inmates, when housed within a local jurisdiction during the decennial census, can act to increase a host community's population (which may benefit the host community in some state and federal aid programs) without consuming any housing or increasing the burden on community services. With the proposed project site located within Leavenworth County, any benefits which may result of having the population housed at the proposed facility included among the county's total population would be limited by state and federal laws and the requirements and regulations governing particular aid programs.

Federal inmates are not released to the host community at the completion of their sentence. Available evidence also indicates that federal inmates and their dependents generally do not relocate to the area of incarceration upon release, choosing instead to return to their home communities. Therefore, the direct impact of federal inmates upon the host community population would be limited to the number

housed in the facility which, in the case of the proposed project, would total approximately 1,800 inmates.

b. Recommended Mitigation

The majority of induced (indirect) employment opportunities and approximately 30 percent of the direct employment opportunities resulting from the proposed project are expected to be filled by the labor pool residing within Leavenworth County and the counties comprising the Kansas City MSA. The majority of the direct employment opportunities (approximately 70 percent) resulting from the proposed project would be filled by transferring BOP employees and new hires relocating to the region. The nature and scale of any demographic effects would not result in significant adverse impacts or to require mitigation actions, except as they may result in impacts to regional housing markets and community facilities as discussed elsewhere in this chapter.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at the USP Leavenworth property. Hence, impacts to regional demographics would not occur and mitigation would not be warranted.

L. ECONOMIC CHARACTERISTICS

1. Existing Conditions

The following describes the economic characteristics of the City of Leavenworth and Leavenworth County, and the Kansas City, Missouri - Kansas Metropolitan Statistical Area (MSA). The Kansas City MSA includes Franklin, Johnson, Leavenworth, Linn, Miami, and Wyandotte Counties in Kansas; and Bates, Caldwell, Cass, Clay, Clinton, Jackson, Lafayette, Platte, and Ray Counties in Missouri. The adjacencies, convenient roadway connections, and the industrial concentrations found in the MSA have also influenced the economy of Leavenworth and, therefore, baseline economic information for these jurisdictions has been incorporated here to account for potential impacts to those adjoining jurisdictions.

a. Leavenworth County and City of Leavenworth

According to U.S. Department of Labor, Local Area Unemployment Statistics for 2010, the labor force available in the City of Leavenworth was 14,736 (Table III-16) and the labor force available in the county was 32,353. The unemployment rate in 2010 was higher in the city (10.9 percent) than in the county (8.4 percent). According to U.S. Census, American Community Survey estimates for 2009 (2010 Census industry data is not yet available), the largest percentage of those employed in the City of Leavenworth had jobs in educational services (see Table III-17), and health care and social assistance (21.4 percent) followed by retail trade (14.9 percent) and public administration (14.1 percent). Regarding employment in Leavenworth County, 21.5 percent of those employed had jobs in educational services, and health care and social assistance, while 12 percent had jobs in retail trade and 10.4 percent in public administration.

Leavenworth County ranks below the national average for per capita income but above the national average for median household income. According to the U.S. Census, per capita income in Leavenworth County in 2009 was $25,342 compared with $25,552 in Kansas and $27,041 for the U.S. However, the

TABLE III-16
LABOR FORCE DATA – CITY OF LEAVENWORTH AND LEAVENWORTH COUNTY

Category	City of Leavenworth	Leavenworth County
Civilian labor force	14,736	32,353
Employed	13,132	29,640
Unemployed	1,604	2,713
Percent Unemployed	10.9%	8.4%

Source: U.S. Department of Labor, Bureau of Labor Statistics, 2011.

TABLE III-17
EMPLOYMENT SECTORS – CITY OF LEAVENWORTH AND LEAVENWORTH COUNTY

	City of Leavenworth		Leavenworth County	
	Total	% of Total	Total	% of Total
Civilian employed population 16 years and over	13,165	100%	31,884	100%
Agriculture, forestry, fishing and hunting, and mining	101	0.8%	395	1.2%
Construction	946	7.2%	2,898	9.1%
Manufacturing	869	6.6%	2,538	8.0%
Wholesale trade	197	1.5%	767	2.4%
Retail trade	1,957	14.9%	3,816	12.0%
Transportation and warehousing, and utilities	575	4.4%	2,271	7.1%
Information	253	1.9%	669	2.1%
Finance and insurance, and real estate and rental and leasing	819	6.2%	2,105	6.6%
Professional, scientific, and management, and administrative and waste management services	934	7.1%	2,509	7.9%
Educational services, and health care and social assistance	2,819	21.4%	6,848	21.5%
Arts, entertainment, and recreation, and accommodation and food services	1,191	9.0%	2,311	7.2%
Other services, except public administration	643	4.9%	1,407	4.4%
Public administration	1,861	14.1%	3,350	10.5%

Source: U.S. Census, American Community Survey, 2009.

median household income for Leavenworth County in 2009 was $57,691 compared with $47,709 in Kansas and $50,221 for the U.S. The 2009 per capita income in the City of Leavenworth was $18,758 and the median household income was $40,681. Leavenworth County and the City of Leavenworth had a smaller percentage of its population with incomes below the poverty line than the nation as a whole in 2009. According to the U.S. Census, 9.5 percent of the county's population, and 9.1 percent of the City's population had incomes below the poverty line, compared to 14.3 percent of the nation.

b. Kansas City MSA

According to the U.S. Bureau of Labor Statistics, total nonfarm employment for the Kansas City MSA decreased by 5,200 to a total of approximately 943,300 (approximately 0.6 percent) during the year ending in February 2011, while employment nationwide increased 1.0 percent. Though the Kansas City MSA has registered 28 consecutive months of employment declines, the rate of loss has slowed since peaking in October 2009 (decrease of 4.3 percent).

The Kansas City MSA is comprised of two separately identifiable employment centers—the Missouri portion of the MSA and the Kansas portion of the MSA. The Missouri portion, which had 56 percent of the area's jobs, accounted for 42 percent of its employment loss in February 2011, down 2,200 or 0.4 percent. The Kansas portion, with 44 percent of the area's employment, accounted for 58 percent of the jobs lost, declining by 3,000 or 0.7 percent.

In the Kansas City MSA, two supersectors—professional and business services, and leisure and hospitality—registered the largest decreases in employment, with each shedding 2,300 jobs from February 2010 to February 2011. Both declines were concentrated in the Missouri portion of the area with 1,700 jobs lost in professional and business services and 1,800 jobs lost in leisure and hospitality.

Nationally, employment in these supersectors increased, up 2.7 percent for jobs in professional and business services, and up 1.2 percent for jobs in leisure and hospitality. Three additional supersectors experienced declines of more than 1,000 jobs in the Kansas City MSA over the year. The information supersector lost 1,900 jobs while the financial activities supersectors lost 1,700 jobs. Employment losses in both of these industries happened largely in the Kansas portion of the metropolitan area.

Trade, transportation, and utilities reported the largest gain, adding 1,700 jobs, with all of the growth occurring in the Kansas portion of the MSA. The local rate of job growth in this supersector (0.9 percent) was close to the industry's national average (1.0 percent). Government employment in the metropolitan area expanded by 1,500, or 1.0 percent, while government employment nationwide declined 1.2 percent from a year ago. Locally, education and health services continued to add jobs, up 1,200 or 0.9 percent, with nearly all the growth registered in the Missouri portion of the metropolitan area. However, employment in this supersector grew at a slower pace than the nationwide industry average of 2.2 percent.

2. Potential Impacts and Mitigation

Development of the proposed FCI would stimulate the regional economy during both the construction and operational phases. Economic impacts would result from material purchases in the region generating local sales, from construction and operational payrolls for labor on- and off-site, and from related spending by supplying firms and laborers ("multiplier effects"). The economic impacts associated with the construction phase would occur for only that period of time while actual construction was underway, while economic activity generated during the operational phase would continue throughout the life of the new institution. Three types of economic impacts would result from the development of the proposed project

- **Direct Impact**. The direct impact of a project is defined as the initial change in final demand in which expenditures are made for materials and labor in the region. The direct impact to the region due to the construction or operation and maintenance is attributable to the local purchase of needed

materials and services and the expenditure of project payroll by construction laborers or the permanent workforce.

- **Indirect Impact.** The initial direct expenditure impacts prompt further "indirect" economic activity by supplying industries that furnish requisite input materials and services to the industries directly involved in construction or the vendors supplying goods and services to the facility during permanent operation. These indirect impacts reflect the intermediate production or increased economic activity to supply services, materials, and machinery necessary to support the construction program.

- **Induced Impact.** The labor force would re-spend a significant portion of their salary and wage earnings on various consumer expenditures, producing an "induced" effect. The induced impact is the effect of increased consumer spending by salary and wage earners in the study industry and other supporting industries. The induced impact is conservatively estimated downward by accounting for potential "leakages" due to taxation, savings, and non-local re-spending.

The successive rounds of economic activity stimulated by the initial expenditure of funds during construction is the ripple or "multiplier effect." The ripple effect can account for a significant portion of the total regional economic impact. Together, the indirect and induced impacts constitute the multiplier effect – the extent to which the direct impact results in additional economic activity. Expressed numerically, a multiplier of 1.50 indicates that for every dollar directly generated by the industry under study, an additional $0.50 of ripple effects are felt within the local region, for a total impact of $1.50.

It is assumed that impacts of material purchases during construction and operation of the proposed project would occur primarily within the Kansas City Metropolitan region, since employees are anticipated to be largely drawn from within these counties and commute to the proposed project site. Based on a review of U.S. Bureau of Labor Statistics data, in the first three months of 2011 there were approximately 33,000 employed construction employees residing within the Kansas City Metropolitan Statistical Area (MSA), while at the end of 2008 there were approximately 50,000 employed construction workers. In early 2011 the unemployment rate for construction workers in the Kansas City MSA was approximately 21 percent.

a. Potential Economic Impacts During the Construction Phase

The proposed FCI is expected to be developed in a single phase with design/construction to commence in 2013 and end in 2016. In determining the potential economic impacts of developing the FCI, the following assumptions are made:

- A project budget of approximately $290 million to be expended over approximately 36 months; and

- The project budget was divided between labor payroll (43 percent), materials and services (52 percent) and contingency, indirect business taxes, and profits (five percent).

The split was developed after review of comparable projects. The construction phase can be divided into three major elements: payroll; materials; and contingency, taxes and profits. The FCI project is estimated to directly support over 450 construction-related jobs annually over a 36-month period, although some of these jobs are estimated to be provided non-locally (i.e., by laborers residing permanently outside the Kansas City MSA and commuting to the project site). The proposed FCI is also estimated to generate total industry sales for construction materials, subcontractors, and other goods

and services of approximately $160 million. Payroll expenses from the proposed FCI are estimated to be approximately $130 million.

b. Potential Economic Impacts During Operation

Potential economic impacts during operation of the FCI on the local economy are generated through direct labor expenditures as well as expenditures on materials, utility services, food, and other necessities. Estimates of the FCI's operating employment and output have been made after reviewing other correctional facility budgets, future staffing requirements, and the estimated number of inmates to be housed at the proposed facility:

- An annual operating budget of approximately $35 million (2010 dollars) during FCI operation following completion of construction in 2016 based on BOP operation of correctional facilities of similar function and size.

- An annual payroll of approximately $24.3 million (2010 dollars). Take home wages would constitute approximately 70 percent of the total payroll, with deductions for federal, state and local taxes and social security, as well as other employee benefits; and

- Other annual expenditures totaling approximately $10.7 million (2010 dollars), comprising expenditures for health services, food, utilities, equipment, and other goods and services necessary for operation.

The proposed project's ongoing operations and maintenance activities are expected to directly support approximately 350 new jobs and inject several millions of dollars in sales and direct earnings into the local economy annually. In addition, local multiplier effects associated with these direct expenditures are expected to generate additional local sales each year, indirectly supporting additional private-sector jobs.

c. Recommended Mitigation

In considering development of the proposed FCI, attention was given to the local employment and economic goals and objectives. Such an evaluation has revealed a proposed project consistent and compatible with those goals and objectives as expressed by elected officials and community leaders representing the City of Leavenworth and Leavenworth County. Development of the FCI would be consistent with the goals of local planning and economic development officials to secure new employment opportunities, stimulate new economic activities in the area, and to direct such activities toward areas served by or near existing infrastructure and existing BOP facilities. Input from local planning officials during EIS preparation has established the importance of the proposed project to achieving the social and economic development goals of the city and county. With the economic impacts of the proposed project considered beneficial to the eastern Kansas region by providing employment and economic opportunities to residents and business owners, no mitigation measures are warranted.

d. No Action Alternative

Under the No Action Alternative, the proposed FCI and FPC would not be developed at the USP Leavenworth property. Any potential benefits to the local and regional economy resulting from construction and operation of the proposed project would not occur under the No Action Alternative and mitigation measures would not be warranted.

M. HOUSING CHARACTERISTICS

Significant adverse impacts to housing would be expected if a project would substantially alter the housing characteristics in the vicinity of the project, either by reducing the number of housing units, or increasing the population above the capacity of the available housing stock. In order to consider a worst-case scenario, the study area for housing characteristics is defined as the immediate vicinity of the proposed project – the City of Leavenworth, the City of Lansing, and Leavenworth County. It is unlikely that BOP employees required to staff the proposed facility would all settle in this study area, so if no significant adverse impacts to housing conditions are anticipated in the study area, it follows that no adverse impacts to housing conditions due to the proposed project would occur over a larger area.

1. Existing Conditions

According to the 2010 U.S. Census there were 26,697 housing units in Leavenworth County (Table III-18). Of this total, approximately 26,447 units (92.2 percent) were occupied and 2,250 units (7.8 percent) were vacant. In the cities of Leavenworth and Lansing, there were a total of 17,041 housing units of which 15,436 (90.6 percent) were occupied and 1,605 (9.4 percent) were vacant. Of the occupied units in these two communities, approximately 8,613 (55.8 percent) were owner-occupied and 6,823 (44.2 percent) were renter-occupied. The City of Leavenworth in 2010 had the highest percentage of vacant units, accounting for 1,414 (10.3 percent) of the 13,670 units, while Lansing had 191 vacant housing units. Housing units built in the City of Leavenworth were, on average, older than those built in Lansing and Leavenworth County as a whole.

TABLE III-18
HOUSING CHARACTERISTICS – LEAVENWORTH, LANSING AND LEAVENWORTH COUNTY

	Leavenworth County		Lansing		City of Leavenworth	
	Total	% of Total	Total	% of Total	Total	% of Total
Housing Units	28,697	100%	3,371	100%	13,670	100%
Occupied	26,447	92.2%	3,180	94.3%	12,256	89.7%
Vacant	2,250	7.8%	191	5.7%	1,414	10.3%
Owner-Occupied	17,907	67.7%	2,341	73.6%	6,272	51.2%
Renter-Occupied	8,540	32.3%	839	26.4%	5,984	48.8%
Median Year Built	1975	-	1986	-	1963	-
Median Gross Rent*	$741	-	$874	-	$727	-
Median Value**	$160,300		$165,000		$120,600	

Source: 2010 U.S. Census, except *Median Year Built, Median Gross Rent and Median Value* – 2000 Census.
*Renter-Occupied Units
** Owner-Occupied Units

As illustrated in Table III-19, approximately 76 percent of the housing units in Leavenworth County were single-family detached units. (Because these data from the 2010 Census were not available at the time of this analysis, 2009 estimates are used.) In Lansing, a higher percentage (80.5 percent) was single-family detached units, while in the City of Leavenworth a lower (65.7 percent) percentage was single-family detached units. The highest percentage of mobile homes is found in Lansing and a higher percentage of multi-family housing units were found in the City of Leavenworth.

TABLE III-19
UNITS IN STRUCTURES – LEAVENWORTH, LANSING AND LEAVENWORTH COUNTY

Units in Structure	Leavenworth County		Lansing		City of Leavenworth	
	Total	% of Total	Total	% of Total	Total	% of Total
Single-Family Detached	27,934	76.2%	3,144	80.5%	13,656	65.7%
Duplex	21,282	6.6%	2,532	0.4%	8,967	10.7%
2 Units	1,848	3.2%	12	1.2%	1,462	4.6%
3 or 4 Units	889	3.5%	38	2.2%	634	5.3%
5 to 9 Units	981	3.8%	69	5.4%	725	6.1%
10 to 19 Units	1,065	1.5%	170	1.0%	830	2.4%
20 to 49 Units	422	0.9%	30	2.3%	331	1.2%
50 or More Units	253	1.1%	73	0.7%	163	2.2%
Mobile Home	321	3.1%	21	6.3%	298	1.8%

Source: U.S. Census, 2009 Estimates.

In the City of Leavenworth the median value of individual housing units in 2009 was estimated to be $120,600 and the median monthly gross rent (with utilities) was estimated to be $727. These figures were slightly higher in the county and higher yet in Lansing.

In addition to private housing stock located in Leavenworth County and the surrounding region, approximately 15 single-family detached housing units are located on the USP Leavenworth property for exclusive use by BOP employees under a rental agreement. These units are situated adjacent to and north of Metropolitan Avenue and east of the USP in the area between North 9th Street and North 11th Street.

2. Potential Impacts and Mitigation

a. Potential Impacts

Operation of the proposed FCI is expected to employ approximately 350 full-time workers, of which approximately 264 households are expected to relocate to the area surrounding the FCI upon operation. In addition, under certain development scenarios, up to 15 single-family housing units, owned by the BOP and occupied by BOP employees, may need to be demolished to accommodate development of the proposed FCI. The addition of these new households has the potential to impact (positively or negatively) the regional housing market. According to the U.S. Census of Population and Housing, there were 8,540 renter-occupied housing units and 17,907 owner-occupied housing units in Leavenworth County in 2010 along with 2,250 vacant units (approximately 7.8 percent of the total units). In Lansing there were 191 vacant units (5.7 percent of the total) and in the City of Leavenworth there were 1,414 vacant housing units (10.3 percent of the total).

Given the relatively large number of vacant housing units in Leavenworth County alone, the housing demands associated with the addition of approximately 279 new households (264 new hires relocating to the area and up to 15 households displaced by construction) during FCI operation should not pose a significant adverse impact to the area housing market. Rather, the housing requirements associated with relocating BOP employees are expected to support the housing market by stimulating a demand for

housing. This is especially important in the City of Leavenworth, where the housing market has been adversely affected by many years of stagnant or declining populations.

b. Recommended Mitigation

Relocating, permanent BOP employees should not encounter undue difficulties in acquiring adequate housing nor should their housing demands unduly impact housing availability or costs in Leavenworth County and the Kansas City MSA. The supply of vacant housing should easily accommodate any demands resulting from employees involved in the construction and operation of the proposed project. Nonetheless, the BOP, as part of its planning and development process, anticipates working closely with local and regional housing agencies and officials to address issues affecting housing availability, quality and costs and employee needs and preferences prior to FCI activation.

c. No Action Alternative

Under the No Action Alternative, the proposed FCI would not be developed at the USP Leavenworth property and, therefore, the housing market would not be affected. With the number of vacant housing units in Leavenworth County and surrounding counties, any potential beneficial impacts to the local and regional housing markets by an influx of BOP employees would not occur under the No Action Alternative.

N. COMMUNITY SERVICES AND FACILITIES

1. Existing Conditions

a. Law Enforcement

The Leavenworth Police Department is responsible for law enforcement in the City of Leavenworth. With its headquarters located at 601 South 3rd Street in Leavenworth, department resources are located only two miles from the project site. The department maintains a force of 66 officers and has mutual aid agreements with USP Leavenworth and Fort Leavenworth.

The Leavenworth County Sherriff's Department provides law enforcement within the county. The Sherriff's Department maintains detective services, jail operations and patrol divisions with a total complement of 110 personnel and a fleet of over 30 vehicles. Specialty areas include Tactical Assistance Group, Clandestine Response, DARE and K-9.

b. Fire Protection

Fire protection service for the residents and businesses within the City of Leavenworth is provided by the Leavenworth Fire Department. The department maintains three station locations: Station 1, serving as the department headquarters, is located at 3600 S. 20th Street, in the southern part of Leavenworth, approximately five miles from the project site; Station 2 is located at 925 Shawnee Street at the intersection of S. 10th Street and Shawnee Street, less than one mile south of the project site; and Station 3, located at 2805 2nd Avenue approximately four miles south of the project site. The Leavenworth Fire Department, with a staff of approximately 55 personnel, provides fire control and suppression services, emergency medical services, vehicle extrication, hazardous materials response, high-angle rescue and water rescue. The department maintains four engines (pumpers), a rescue truck and rescue boat, an aerial truck and a hazardous materials response trailer, a four-wheel-drive truck and

a special piece of fire-fighting equipment (a quint) that serves five functions: pumper, water tank, fire hose, aerial device, and ground ladders.

c. Emergency Response

Leavenworth County Emergency Medical Service (EMS) provides advanced life support ambulance service throughout the county. The Leavenworth County EMS provides both emergency (911) and non-emergency services to the community and responds to an average of 15 calls per day.

Leavenworth County EMS maintains a minimum of three advanced life support ambulances, staffed 24 hours a day. The service maintains three stations, two in Leavenworth and one in Tonganoxie, which helps decreases the response time for emergency calls.

d. Medical Services

The Cushing Memorial Hospital, located at 711 Marshall Street in Leavenworth, is part of the Saint Luke's Health System. The general medical and surgical hospital, located approximately 2.5 miles from the project site, maintains 68 beds. Services available include: imaging (CT scanner, diagnostic radioisotope facility, magnetic resonance imaging, multislice spiral CT), inpatient services (birthing room, end-of-life services, psychiatric care), and outpatient services. The hospital employs five full-time and three part-time licensed practical nurses, and 47 full-time and 43 part-time registered nurses. The hospital supports an emergency room.

The greater metropolitan area of Kansas City has numerous hospitals within 20 to 40 miles of the project site including the Truman Medical Center, Saint Luke's Health System, University of Kansas Medical Center, Providence Medical Center, North Kansas City Hospital, Saint Joseph Medical Center, Olathe Medical Center among others. These facilities offer a wide array of services. Several facilities specialize in care and treatment of children, while others specialize in behavioral medicine. In addition, the U.S. Department of Veterans Affairs operates two medical centers located in the southeast part of Leavenworth, off South 4th Street, approximately five miles south of USP Leavenworth.

e. Public Education

Public education in Leavenworth County is provided by six school districts: Basehor-Linwood (Unified School District 458 [USD 458]), Easton (USD 449), Fort Leavenworth (USD 207), Lansing (USD 469), Leavenworth (USD 453) and Tonganoxie (USD 464). The Basehor-Linwood USD operates three elementary schools, one middle school and one high school. Easton USD operates two elementary schools, one middle school and one high school. Fort Leavenworth USD operates three elementary schools and one junior high school. Lansing UDS operates one elementary school, one middle school and one high school. Tonganoxie USD operates one elementary school, one middle school and one high school.

The Leavenworth Unified School District operates four elementary schools (Anthony Elementary School; David Brewer Elementary School; Henry Leavenworth Elementary School; and Lawson Elementary School), two middle schools (West Intermediate School; Richard Warren Middle School) and one high school (Leavenworth High School). Enrollment for the 2010-2011 school year totaled 1,825 students among the elementary schools, 850 students in the middle schools and 1,450 students in the high school. The Leavenworth USD employed 472 teachers with the average teaching experience being 11.2 years; 57.6 percent of the teachers held advanced degrees. In 2010-2011, the district also employed a

support staff of 357. The Leavenworth USD has increased per student expenditures from $13,875 in 2007-2008 to $14,275 in 2008-2009 (three percent) and to $16,231 per student in 2009-2010 (14 percent).

Student enrollment and school capacity figures for the Leavenworth Unified School District indicate that excess capacity exists in all school operated by the district (Table III-20). Elementary schools have a capacity of an additional 526 students, middle schools have a capacity for an additional 582 students and Leavenworth High School has capacity for an additional 250 students.

TABLE III-20
LEAVENWORTH PUBLIC SCHOOLS – ENROLLMENT AND CAPACITY

	2010-2011 Enrollment	Capacity	Percent of Capacity	Excess Capacity
Elementary Schools	1,825	2,351	77.6%	526
Middle/Intermediate	850	1,432	59.3%	582
High School	1,450	1,700	85.3%	250

Source: Leavenworth Unified School District, 2011.

Interviews with officials from other districts indicated that the Lansing Unified School District is currently at capacity and Tonganoxie Unified School District is at capacity at their high school and middle schools and above capacity at their elementary schools. Basehor-Linwood has capacity for 345 additional students in their three elementary schools, 334 additional students in their middle school, and an additional 130 students in their high school. Easton Unified School District accepts out-of-district students if in-district students do not fill all available seats. Although the schools within the district are currently at capacity, in-district students account for 282 of the available 320 elementary school seats (88.1 percent), 154 of the available 170 middle school seats (90.6 percent) and 249 of the available 260 high school seats (95.8 percent). The Easton School District has a capacity for an additional 38 in-district elementary students, 26 in-district middle school students and 11 in-district high school students. Tonganoxie Unified School District is currently over capacity at their elementary schools and at capacity in their middle schools and at their high school.

Fort Leavenworth Unified School District admits students from the Fort Leavenworth federal property (including students living in BOP-owned housing at USP Leavenworth), but does not admit students living outside the property. Capacity and enrollment for the district's schools are not considered in this evaluation.

2. Potential Impacts and Mitigation

a. Potential Impacts – Construction Phase – Law Enforcement

Law enforcement Leavenworth County is the responsibility of the Leavenworth County Sheriff's Office and municipal police departments. In the City of Leavenworth, police protection is the responsibility of the Leavenworth Police Department, as described above. The county sheriff's office and the Leavenworth Police Department are dispatched through a central 911 dispatcher. Individually and in concert, these law enforcement agencies provide ample police protection and coverage throughout the area (although the BOP maintains responsibility for overall security of its facilities and grounds at USP Leavenworth).

During construction of the proposed facility a security fence would surround the construction site and security would be provided by the contractor. Because the proposed site is located on BOP property, the BOP is responsible for overall security. Construction activities would not be expected to significantly affect law enforcement services in the area of the FCI project site. Public roadways leading to and from the project site would not be affected by construction activities and would remain open, accessible, and available for law enforcement response during the construction period. There is no reason to expect that construction of the proposed project would place an undue burden upon law enforcement agencies and personnel serving the residents, businesses and public institutions in the area surrounding the project site. No impacts to law enforcement are anticipated during construction of the facility.

b. Potential Impacts – Operational Phase – Law Enforcement

As with each new BOP correctional facility, staff are trained and equipped prior to activation and operation to handle virtually all emergency situations within the institution. The BOP relies upon a well-trained and well-equipped workforce to ensure the overall functioning and security of its institutions. Furthermore, it would be the responsibility of the United States Marshals Service and the Federal Bureau of Investigation to assist the BOP, if necessary, in the event a federal inmate is reported missing (a rare and unusual occurrence). The BOP would also advise local law enforcement agencies of such situations and would seek their assistance and cooperation as necessary. From BOP experience operating similar facilities, the mere presence of a federal correctional facility would not result in an increase local crime rates within the host community. Rather, the presence of federal correctional officers working and residing in communities surrounding the site of a facility would likely provide added support in such areas. Based upon many years of experience operating USP Leavenworth, along with 116 similar facilities around the country, significant adverse impacts to law enforcement agencies and services serving the Leavenworth County region are not expected to occur as a result of the proposed project.

c. Recommended Mitigation – Law Enforcement

Significant adverse impacts to law enforcement capabilities and resources are not anticipated as a result of construction and operation of the proposed project. Consequently, no mitigation measures, outside of the need to coordinate and communicate project construction and operating activities with local, county, and state law enforcement agencies as necessary, would be warranted.

d. Potential Impacts – Construction and Operational Phase – Fire Protection

Fire protection service to the residents and businesses in Leavenworth is provided by the Leavenworth Fire Department. Department officials estimate the response time to the project site to be approximately five minutes from the time a call is received. Construction activities would not be expected to significantly affect fire protection services in the area of the project site. Public roadways leading to and from the project site would not be affected by construction activities and would remain open, accessible, and available for emergency response during the construction period. There is no reason to expect that construction activities would place an undue burden upon the Leavenworth Fire Department.

The BOP also undertakes stringent precautions to guard against fire emergencies during operation of its facilities. Among the precautions are those involving facility policies and procedures; inspections, fire prevention, control and evacuation planning; and emergency drills as summarized below.

Policies and Procedures

The design and construction of new federal correctional facilities complies with the most current edition of applicable fire safety codes, standards and regulations of the National Fire Protection Association, Occupational Safety and Health Act, and mandatory standards of the American Correctional Association, American Society for Testing and Materials, American National Standards Institute, and Factory Mutual Engineering Corporation.

Inspections

Fire and safety inspections are conducted regularly by qualified BOP staff. Written reports of the inspections are typically forwarded to the Warden for review and corrective action, if needed. The inspection reports and documentation of corrective actions taken are maintained in the Safety Office for review by appropriate officials. A complete review of the institution's fire/safety program is conducted by the Safety Branch of the BOP's Program Review Division on a two-year interval. During the off-year, the Regional Safety Administrator conducts a review. Inspections by other agencies such as local or state fire officials are also permitted.

Fire Prevention, Control, and Evacuation Plan

Each federal correctional facility develops and maintains a fire prevention, control and evacuation plan which includes the following:

- Provision of adequate fire protection service.
- Quarterly testing of fire equipment and monthly fire inspections.
- Proper placement of fire protection equipment throughout the institution.
- The location of building/room floor plans and publicly posted plans, and the use of fire exit signs and directional arrows for traffic flow. The plan is issued to the local fire department along with each revision.
- All areas of the institution have an individual exit diagram posted in a conspicuous location.

Emergency Fire Drills

Emergency fire drills are conducted and documented regularly from all institution locations by BOP staff. Drills are conducted in all areas occupied or manned during normal working hours and are rotated in order to conduct a drill on every shift annually. Along with a general area diagram, exit diagrams are also installed, depicting (in English and Spanish languages) areas of safe refuge, "You are here" points of reference, and emergency equipment locations. In addition, use of portable space heaters is prohibited in BOP institutions.

The BOP proposes to make provisions for emergency back-up fire protection through mutual aid agreements for such assistance as needs may arise. At this time there is no reason to expect such situations would place an undue burden upon outside resources or agencies or result in a significant adverse impact to the Leavenworth Fire Department or other area fire departments.

e. Recommended Mitigation – Fire Protection

Because the potential impacts to fire protection services resulting from development of the proposed project would not result in significant adverse impacts, no mitigating measures, outside the need to

coordinate and communicate project construction and operating activities with the appropriate fire protection agencies, would be warranted.

f. Potential Impacts – Construction Phase – Medical Services

Construction activities associated with the proposed FCI would not be expected to significantly affect emergency medical services and health care facilities in the area of the project site. Public roadways would remain accessible to emergency vehicles during the construction phase and would be available for emergency response. There is no reason to expect that injuries and accidents which may occur during construction would place an undue burden upon medical responders or health care facilities and providers operating in the Leavenworth area.

g. Potential Impacts – Operational Phase – Medical Services

USP Leavenworth has its own on-site medical staff and equipment to provide inmates with routine examinations and medical care. In addition to on-site resources, the BOP operates Federal Medical Centers in North Carolina, Massachusetts, Minnesota, Kentucky, Missouri and Texas which serve most non-emergency medical needs of inmates within the BOP's custody. In order to provide inmate health care services, the proposed FCI would include a medical clinic for general examination and treatment, including a small in-patient suite and a dental clinic. The proposed facility would also include a dialysis unit (approximately 48 beds) as well as a long-term care unit (approximately 128 beds).

Instances where outside medical assistance would be required to assist FCI inmates are anticipated to be minimal and would be addressed in the same manner as other existing BOP correctional institutions; via contracts with area medical facilities for such assistance. The BOP would similarly contract for local emergency ambulance service in cases which require an inmate to be transported from the FCI to area medical facilities. There is no reason to expect that such situations would place an undue burden upon medical facilities or health care providers operating in Leavenworth County and the Kansas City MSA during operation of the proposed FCI. Existing health care facilities and providers would also be capable of serving the medical needs of the influx of new residents to the area represented by BOP employees and their dependents. No significant adverse impacts to area medical services and facilities would be anticipated as a result of the proposed project.

h. Recommended Mitigation – Medical Services

With provision of on-site medical staff and clinics at the existing USP and the proposed FCI, the availability of BOP-run Federal Medical Centers, and nearby Cushing Memorial Hospital, no significant adverse impacts to area emergency medical services and health care facilities are anticipated. In the absence of significant adverse impacts, no mitigation measures would be warranted.

i. Potential Impacts – Construction and Operational Phase – Public Education

It has been estimated that 40 percent of the BOP's 350-person workforce (approximately 140 employees) would be transferred into the region from other federal correctional facilities, with an additional 147 new BOP employees (new hires) relocating into the region to operate the FCI. (The remaining 63 new BOP employees are projected to originate from within the region.) While a portion of the relocating individuals would likely elect to settle outside the region, it has been assumed that all 287 employees would relocate to Leavenworth County alone in order to provide a highly conservative assessment of potential impacts to public school systems. Approximately 23 employees, following FCI

activation, would reside within the same household as another BOP employee, reducing the number of households to 264 for the purpose of this analysis.

Current BOP employees along with new hires would be expected to relocate to the area along with other family members (i.e., spouses, children, etc.). To account for the dependents of the 264 new households, a multiplier of 3.52 persons per household has been applied on the basis of employee household size data from the BOP's Employee Social Climate Survey. The BOP's survey is considered more a more accurate description of BOP employees than national estimates of average household size from the U.S. Census and results in an estimated 929 persons relocating to the area.

To estimate the number and age of school-age children included among the 264 (total) relocating households, consideration has also been given to the age characteristics of migrating households in the United States. A ratio relating the total number of individuals of school age (5 to 17 years) to all relocating persons of working age (18 years to 65 years) has been determined. Applying this ratio, 0.2264, to the total number of persons anticipated to migrate to the region (approximately 929) results in a projected 210 children of school age. Based upon the percentage age distribution of migrating children in the United States as reported by the U.S. Census Bureau, the grade-specific distribution for the projected school age children has also been estimated in Table III-21.

TABLE III-21
PROJECTED NUMBER OF SCHOOL AGE CHILDREN FROM PROPOSED PROJECT

Grade	Number of School Aged Children
Kindergarten to 5th Grade	93
6th Grade to 8th Grade	74
9th Grade to 12th Grade	43
Total	210

Source: The Louis Berger Group, Inc., 2011.

Students residing within the immediate vicinity of the proposed project site would attend public schools located in Leavenworth County, while those residing outside the county would have a wide choice of school districts in the counties comprising the Kansas City MSA and elsewhere. From discussions with public school officials, it is reported that the public schools in the City of Leavenworth could accommodate students in all grades with little or no constraints to the education system. Distribution of approximately 210 school age children among public schools in the county should pose no significant adverse impact. As a result of declining enrollments in the Leavenworth USD at all grades, there exists capacity to absorb additional students generated by the proposed project. Additionally, excess capacity exists in other school districts in Leavenworth County. The modest potential influx of school-age children anticipated to result from development of the proposed facility would not be expected to pose significant adverse impacts to area public school systems.

j. Recommended Mitigation – Public Education

Because the increase in school age students resulting from the proposed action is expected to be manageable and not result in a significant adverse impact, no mitigation measures would be warranted. Furthermore, there is sufficient time to plan and implement improvements to the public school system before BOP employees begin relocating to the area and the proposed project begins operation in during the 2016-2017 school year.

k. No Action Alternative

Under the No Action Alternative, the proposed project would not be developed at the USP property in Leavenworth. Hence, impacts to law enforcement, public schools, medical care, and fire protection would not occur and mitigation measures would not be required.

O. LAND USE

1. Existing Conditions

According the 2010 City of Leavenworth Comprehensive Land Use Plan, the City contains approximately 10,990 acres including the following predominant uses:

- Agricultural – 3,553 acres or 32.33 percent of the total area
- Commercial – 1,764 acres or 16.05 percent of the total area
- Single-family residential – 1,373 acres or 12.49 percent of the total area

Remaining uses include parks, schools and industrial uses. The City of Leavenworth's land use pattern is unique in some respects as a result of the large percentage of federally-owned land (approximately 6,790 acres). USP Leavenworth and U.S. Army's Fort Leavenworth (both federal properties) lie primarily in the north of the city's downtown central business district and just outside the city limits which extends to Metropolitan Avenue.

USP Leavenworth is located approximately 34 miles northwest of Kansas City in Leavenworth County. Opened in 1906, USP Leavenworth was the first federal correctional facility. In 1895, Congress transferred the military prison at Fort Leavenworth to the U.S. Department of Justice and when the War Department objected, Congress authorized 1,000 acres adjacent to the prison for a new penitentiary to house approximately 1,200 inmates. In 1957, the minimum-security FPC was constructed in an area located west of the USP. A Visitors Center was constructed in 1991 and since 1906 other supporting structures on the USP Leavenworth property have been developed including various UNICOR facilities, warehouses, garages and maintenance buildings, and parking areas. In 2006, the BOP transitioned USP Leavenworth from a high-security facility to a medium-security facility to accommodate the growth in the medium-security inmate population. This transition was part of the BOP's long-range plan to utilize older high-security institutions to house medium-security inmates as new and more modern high-security facilities are developed.

Today the USP Leavenworth property consists of approximately 754 acres. Much of the southern portion of the USP Leavenworth property, bordered by Metropolitan Avenue, has already been developed with the USP, minimum-security satellite prison camp, warehouses, BOP staff housing, internal roadways, parking areas and other ancillary support facilities.

Of the remainder of the property, two alternative areas located east and west of the USP are under consideration for development. The first area, known as the East Site, consists of approximately 227 acres of primarily undeveloped land situated east of the USP and north of Metropolitan Avenue, west of Grant Avenue, and south of Corral Creek. Currently, the East Site is comprised primarily of regularly maintained and undeveloped hilly, grassland, bordered to the north by riparian forest that parallels Corral Creek. Two man-made ponds are also situated on the East Site, located north of the primary drainage that bisects the property.

Lands surrounding the East Site consist of mixed commercial and residential uses. Military family housing (known as the Frontier Heritage Community) associated with Fort Leavenworth is found to the north, with two schools situated northeast (Eisenhower Elementary) and east (Patton Junior High) of the East Site. Commercial development fronting on Metropolitan Avenue forms a buffer between the USP Leavenworth property and the concentration of residential housing located further south of Metropolitan Avenue. The USP abuts the western boundary of the site.

It should be noted that those above-mentioned commercial uses that front Metropolitan Avenue are part of the designated "Downtown and North Leavenworth Redevelopment Area". This redevelopment plan targets the revitalization of downtown Leavenworth and also emphasizes redevelopment in the northeastern area of the City for better connection/continuity with downtown. Along Metropolitan Avenue, the plan includes a suggested framework for a cohesive campus or park-like setting for the business/innovation development component, as well as a comprehensive strategy for residential redevelopment that will ensure significant and substantial change in a planned and orderly manner. Strong north-south connections are emphasized as well as a predominance of street level retail with upper level office and residential.

The second area, described as the West Site, comprises approximately 144 acres and is located west of the USP. The West Site includes the minimum-security satellite prison camp and is generally bounded by Metropolitan Avenue on the south, Santa Fe Trail on the west, and an abandoned railroad grade on the north. The West Site is also comprised of regularly maintained grassland. The southeastern corner, adjacent to Metropolitan Avenue, is occupied by a large pasture which is home to several buffalo (and described as the Buffalo Pasture). Land uses adjacent to the West Site include the military family housing (known as the Frontier Heritage Community) and the Bradley Elementary school to the north (both associated with Fort Leavenworth), USP Leavenworth-owned property (cemetery and Warden's residence) to the west and residential development (across Metropolitan Avenue) to the south. The eastern border of the West Site abuts the main USP.

According to the City of Leavenworth Zoning Maps (2010) and the Leavenworth County Zoning Map (2009), the USP Leavenworth property (as well as Fort Leavenworth) is exempt from any zoning ordinances as a result of its ownership by the Federal Government.

2. Potential Impacts and Mitigation

It is anticipated that potential land use impacts would be similar for the proposed project under either Build Alternatives (East-1 or East/West Composite). As a result, the discussion below is inclusive of both Build Alternatives, with distinctions in potential impacts (if any) amongst the two alternatives also identified.

a. Potential Impacts

In considering development of the proposed project, attention was given to the relationship of such development to land use plans and policies of the City of Leavenworth and Leavenworth County. This evaluation has revealed a proposed project consistent and compatible with land use development goals and objectives as expressed by elected officials and community leaders representing the city and county. Continuing development of the USP Leavenworth property by constructing a medium-security FCI and minimum-security FPC would be consistent with the goals of local planning and development officials to secure new employment opportunities, stimulate new economic activities in the area, and to

direct such activities towards areas available for such development which are served by existing infrastructure and are located away from population concentrations and sensitive environmental features and resources. Input from local planning officials has established the importance of the proposed project for achieving the social, economic, and land use development goals of City of Leavenworth and Leavenworth County.

Development of the proposed project would have a direct impact on land use by transforming an additional portion (estimated at 125 to 150 acres) of the overall 754-acre USP Leavenworth tract from its undeveloped condition into an intensively developed institutional use. The self-contained nature of each correctional facility limits potential direct land use impacts to the project site itself, with little or no impacts, in the form of new land developments, expected to occur on adjoining or nearby properties.

b. Potential Indirect Impacts

While the proposed project would offer employment opportunities by virtue of the 350 new positions associated with operation of the FCI and FPC, the potential exists for many positions to be filled by current residents of the eastern Kansas/western Missouri region, lessening indirect and secondary impacts. The excess capacity in housing, infrastructure, and community services available in the region would be more effectively utilized as a result of the proposed project. Therefore, it is not expected, nor likely that the proposed project itself would result in any significant indirect or secondary land use impacts. Additionally, the proposed project, being self-contained to the USP property, would have no indirect land use impact to the designated "Downtown and North Leavenworth Redevelopment Area" along Metropolitan Avenue.

c. Potential Impacts to Property Values

Studies on the impact of correctional facilities on surrounding land values have shown that no significant adverse impacts to property values occur. Most studies involving correctional facilities and property values have focused on residential land uses, which are generally considered the most sensitive to impact. The studies analyzed property values adjacent to a given correctional facility in comparison to a control group of properties of similar value and style located away from the facility, but still in the same community. These studies included a nationwide survey in which real estate brokers and appraisers were contacted in communities containing federal correctional facilities. The results of these studies indicate that other variables of equal or greater importance may determine the assessed value of properties and are not limited solely to the property's proximity to a correctional facility. Such variables include:

- The location of the correctional facility relative to surrounding land uses;
- Values and marketability of properties in the area prior to construction of the correctional facility;
- Economic outlook- e.g., interest rates, income growth and unemployment rates and the resultant ability of new homeowners to purchase housing;
- Spatial distribution and availability of housing in a variety of price ranges within commuting distance of the site;
- Community and economic growth relative to and independent of the correctional facility; and

- Other factors that may influence desirability of a particular location, e.g., availability of public transportation and proximity to recreational opportunities and cultural amenities.

In light of these studies, surveys and past experiences, the proposed project would not be expected to have an adverse effect on land uses or property values in the area surrounding the USP Leavenworth property. Rather, impacts to the value of adjacent properties would likely be the result of other unrelated factors.

It should be noted that the proposed project would be developed in a location where a federal correctional facility has already been in place for the last century; thus further demonstrating that the addition of a new facility adjacent to USP Leavenworth would not destabilize the values of adjacent properties.

d. Recommended Mitigation

Federal agencies such as the BOP are not subject to traditional local and/or regional zoning and land use development regulations. Nonetheless, the BOP commonly undertakes the following measures to mitigate potential adverse impacts and to maximize the benefits afforded to surrounding land uses:

- Defining the actual building area so as to minimize potential adverse impacts on adjacent land use activities;

- Incorporating thoughtful site design to provide harmony between existing facilities, the proposed facility and its surroundings;

- Limiting the portion of the selected project site subject to disturbance to the degree possible, leaving a buffer area of open space between the proposed facility and neighboring areas; and

- Maintaining the buffer areas to ensure visual compatibility and maximum positive contribution to the aesthetic character of the surrounding area.

The large land area comprising the USP Leavenworth property, and the fact that USP Leavenworth has been in operation for over 100 years, further ensure that potential impacts to neighboring properties are minimized.

e. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed at the USP property in Leavenworth. Hence, direct and indirect/secondary impacts to land uses would not occur and mitigation measures would not be required.

P. UTILITY SERVICES

1. Existing Conditions

a. Water Supply

Potable water is provided to the Fort Leavenworth area by the Leavenworth Water Department, an independent department of the City of Leavenworth. The Leavenworth Water Department's service area includes the cities of Leavenworth and Lansing, as well as six rural water districts. The service area has approximately 10,000 customer meters and serves a population of approximately 50,000 people and water sales have averaged about five million gallons per day (mgd) for the past 15 years. Approximately 22 percent of the total water production is sold wholesale to Lansing and the six rural water districts.

The Leavenworth Water Department owns and operates two water treatment plants (North and South). The North Plant draws raw water from the Missouri River and has a treatment capacity of six mgd. The South Plant draws raw water from nine shallow wells constructed in the Missouri River alluvial aquifer southeast of Leavenworth. It also has a current treatment capacity of six mgd, but was designed for expansion to 12 mgd. Treatment at both plants includes filtering, lime softening, fluoridation, and disinfection. Both plants pump treated water to the five million gallon Pilot Knob Reservoir for distribution. The distribution system includes 180 miles of raw water and treated water transmission and distribution mains. The sizes of the mains range in diameter from two inches to 24 inches. The system also has one booster pump station.

USP Leavenworth is provided with potable water from a 16-inch ductile iron water main located along the south side of Metropolitan Avenue. The USP has two 12-inch connections to this main; one connection is located east of the main USP entrance off N. 13th Street and a second is located just east of the BOP staff housing units off Broadway. Representatives of the Leavenworth Water Department have indicated that the static pressure available at these connections is approximately 105 to 110 pounds per square inch (psi).

b. Wastewater Collection and Treatment

Wastewater collection and treatment services in the Fort Leavenworth area are provided by the City of Leavenworth. The wastewater collection system consists of 133.5 miles of pipe and 2,929 manholes. The system is operated by the City's Water Pollution Control Division and serves a population of approximately 34,000. Wastewater is treated at the City's wastewater treatment plant (WWTP) located at 1800 South 2nd Street. The WWTP is designed to treat an average daily flow of 6.88 mgd and consists of the following facilities: influent screening and pumping; aerated grit removal; primary clarification; intermediate pumping; trickling filters; final clarification; and sludge dewatering. Treated wastewater is discharged to the Missouri River.

The complex of structures comprising USP Leavenworth is served by two pump stations owned and operated by the BOP. One pump station is located at the Federal Prison Camp and conveys wastewater from the camp to the BOP's main pump station. BOP's main pump station is located adjacent to Metropolitan Avenue west of 12th Avenue. This pump station has alternating pumps with a capacity of 1,250 gallons per minute (gpm) and discharges to a 12-inch force main that connects to the City's 15-inch gravity sewer main located near the intersection of 6th Street and Metropolitan Avenue. City officials anticipate that this gravity sewer main could have sufficient capacity to accept flows from a new FCI, but a flow study would need to be conducted to verify this.

c. Electric Power

Electric power service is provided to the USP Leavenworth property by Westar Energy. According to company officials, the substations and transmission lines serving this area have ample capacity to serve new customers.

d. Natural Gas Service

Natural gas service is provided to USP Leavenworth by Southern Star. Two 16-inch gas mains currently exist to the east of the USP. One is a high-pressure main that delivers gas to St. Joseph, Missouri and traverses the east portion of the USP property in a north/south direction. The second is a low-pressure main that serves the USP and dead ends in Platte City. This line also traverses the eastern portion of the USP property in an east/west direction.

Kansas Gas Service also provides natural gas service to the Leavenworth area. Kansas Gas Service purchases gas from third parties and distributes it locally within its network of lines. In the Leavenworth area, Kansas Gas Service purchases gas from Southern Star. A Kansas Gas Service representative indicated that the nearest Kansas Gas Service pipeline capable of supplying a large new customer (such as the BOP) in the Leavenworth area is located almost two miles from the USP property.

e. Telecommunications Service

Telecommunications service is provided to USP Leavenworth by AT&T with cable service provided by Time Warner Cable. According to AT&T representatives, the telecommunications infrastructure in the area is continually being improved and extended as needed to support customer demands. There are no known limitations to providing telecommunications services to new customers in the Leavenworth area.

f. Solid Waste Management

Solid waste generated at USP Leavenworth is transported to the Leavenworth County transfer station then on to the Hamm Landfill in Lansing, Kansas for final disposal. This landfill, owned and operated by MR Hamm Quarry, LLC, is permitted to accept all solid wastes except hazardous waste. This 570-acre, Subtitle D facility is currently accepting approximately 1,500 tons of waste per day. There is no daily limit to the amount of waste the facility can accept, and the landfill has a permitted capacity of 70 years. Landfill representatives foresee no difficulty accepting additional municipal wastes originating from the Leavenworth area.

2. Potential Impacts and Mitigation

a. Potential Impacts - Water Supply

Average daily water demand at the proposed FCI and FPC is projected to total approximately 360,000 gallons with a peak water demand of approximately 700 to 800 gpm, fire flow requirements of approximately 2,000 gpm for 90 minutes, a minimum water pressure of 40 psi, and on-site water storage of approximately 500,000 to 750,000 gallons. The proposed project could also result in additional water demands in the surrounding region as a result of increased population associated with the correctional facility workforce. However, such secondary demands would be distributed among

multiple water systems with only negligible impacts expected to any one system and are not considered here.

The Leavenworth Water Department operates a water supply system currently supplying, on average, approximately five mgd to its customers. The combined capacity of its two water treatment plants is 12 mgd implying an excess capacity of approximately seven mgd, not accounting for peak demand. The city's five million gallon water reservoir provides treated water to the entire distribution system. The City of Leavenworth's water storage and distribution system is sufficient to meet the water supply of its current customers as well as the needs of the proposed FCI.

Water service is readily available in the vicinity of both the East and West sites. Provision of water supply to either of these alternative development sites would require connecting the proposed FCI and FPC to the City of Leavenworth's 16-inch water main located along the south side Metropolitan Avenue or to BOP's 12-inch line north of Metropolitan Avenue. The Water Department's initial analyses show that adequate flow rate and pressure is currently available in the 16-inch water main to support the demands of a new FCI at either the East or West sites. No booster pumping or other improvements to the existing water system are anticipated to serve the proposed project. A flow analysis would have to be performed to determine if the BOP's 12-inch line could meet the peak and fire flow demands of both the existing USP and the proposed FCI and FPC at either the East or West sites.

b. Recommended Mitigation - Water Supply

Development of the proposed FCI and FPC would result in an average daily water demand of approximately 360,000 gpd. The Leavenworth Water Department's existing water system has adequate raw water supply, treatment, storage and distribution capacity to support the demands of existing customers and the proposed project. It is anticipated that the BOP would construct its own on-site elevated water storage tank.

Temporary impacts associated with extending water service to the selected development sites(s), such as noise, dust, soil erosion and traffic disruptions associated with water line installation would be minimized by ensuring that construction periods are kept to the shortest extent possible and effective traffic safety, dust control, and soil erosion and sediment control practices are implemented. The design and construction of water system improvements would follow applicable local and state regulations and permitting procedures. Because no significant adverse impacts to the provision of water supply are expected from the proposed project at either of the alternative development sites, no other mitigation measures beyond coordination and approvals from the appropriate state and local regulatory agencies would be warranted.

c. Potential Impacts - Wastewater Collection and Treatment

Wastewater flows resulting from operation of the proposed FCI and FPC are estimated to be approximately 85 percent of water demand, or 306,000 gpd with a typical peak discharge of approximately 500 to 790 gpm. The primary source of wastewater flows would be domestic wastewater generated by the inmate population. These flows typically occur in a pattern with daily peaks between 6:00 AM and 9:00 PM resulting from periods of peak water usage (meal preparation, personal hygiene, etc.) and may be as high as two to three times the average flow. The proposed FCI is expected to incorporate operation of a prison industry which would be expected to be a low to moderate water user.

Wastewater treatment in the Fort Leavenworth area is provided by the City's WWTP. Flow data collected by the City from 2008 through 2010 indicated an average daily flow of 4.38 mgd, a maximum month flow of 7.63 mgd, and a peak daily flow of 12.39 mgd. The WWTP is designed for an average daily flow of 6.88 mgd implying an excess capacity of approximately 2.5 mgd, not accounting for peak flows or wet weather conditions.

The City has developed a Wastewater Master Plan and associated Update to address long-term operation of the wastewater collection and treatment system. Improvements are identified in the plan to add ultraviolet disinfection, investigate nutrient removal, and to remove extraneous wet-weather related inflow and infiltration (I&I) from the collection system. It is important that the City continue to move forward with their plans to remove extraneous I&I flows from the system to ensure that there is adequate capacity at the WWTP for proper treatment of the BOP's peak flows especially during wet weather events.

Provision of sanitary sewer service to accommodate development within the East Site would require upgrading the BOP's main pump station on Metropolitan Avenue. It could also require additional improvements to the City's gravity sewer line downstream from the BOP's connection. The extent of required improvements (if any) would be determined based on the results of a flow study. Flow data would have to be collected and analyzed along the entire sewer route from the USP to the WWTP. The flow study would have to be performed by the BOP in close coordination with the City's Department of Public Works.

Provision of sanitary sewer service to accommodate development within the West Site would require construction of a new pump station and construction of a force main from the new pump station to the BOP's main pump station. The new pump station and associated force main would be owned and operated by the BOP. Upgrades to the BOP's main pump station would also be required as would potential upgrades to the City's gravity sewer line downstream from the BOP's connection (as described above).

d. Recommended Mitigation - Wastewater Collection and Treatment

The temporary impacts such as noise, dust and erosion which may result from construction of a pump station and force main would be minimized by ensuring that construction periods are kept to the shortest extent possible and effective traffic control measures and soil erosion and sediment control practices are implemented. In addition, the design and construction of wastewater system improvements would be conducted according to applicable local and state regulations and permitting procedures. Development of the proposed facility would include provision of a screening system and a grease trap for food service in order to lessen the potential impacts associated with the introduction of solids and greases to the collection system. No other mitigation measures beyond coordination with appropriate state and local authorities are anticipated.

e. Potential Impacts - Electrical Service

Provision of electric service would be necessary prior to activation of the proposed facility. Although actual energy demands and load estimates will depend upon facility design, operation of a typical medium-security FCI and minimum-security camp is anticipated to have an electric service requirement of 12 to 15 kilovolt (KV) system, three-phase, four-wire, wye; average annual energy use of approximately 18 to 19 million kilowatt-hours (KWH); and a demand load of approximately 4,500 to 5,000 kilowatts (KW).

Overhead electric lines owned and operated by both Westar Energy and Leavenworth Jefferson Electric Co-op (LJEC) currently traverse the East Site. If the East Site is selected for development (utilizing the Alternative FCI East-1 or East/West Composite plans), then approximately 6,500 linear feet of overhead electric line would need to be relocated (approximately 3,100 linear feet of line owned by Westar and 3,400 linear feet of line owned by LJEC). The new relocated line would likely be placed eastward toward an alignment similar to the existing high-pressure natural gas line, thereby creating a utility corridor across the property and allowing for the balance of the site to be developed. Relocation of the overhead electric line would also require a new easement. Contrary to conditions found within the East Site, any development within the West Site would not require the relocation or removal of any overhead power lines.

Power to USP Leavenworth is from Westar's Metropolitan Substation with back up provided from the Northwest Leavenworth Substation. To serve the proposed FCI without back-up, Westar could use the circuit from the Northwest Leavenworth Substation with no significant improvements required to implement this option. To provide approximately 10,000 KW of back-up capacity to the proposed FCI, Westar would need to construct a new substation, replace a transformer at the Northwest Leavenworth Substation, and construct a new circuit from Northwest Leavenworth Substation to the proposed FCI.

Other than temporary impacts such as noise and dust resulting from the extension and relocation of electric service, no significant adverse impacts would be anticipated to provide electric service to development located at either the East or West sites. Supplying electric service and securing any required permits and approvals would be the responsibility of Westar. It is not expected that the proposed project would pose a significant adverse impact to existing electric power services or residential, commercial, or industrial customers in the region.

f. Recommended Mitigation - Electrical Service

Mitigation measures would include ensuring that any overhead power line relocations are carried out in conformance with applicable regulations and with a minimum of disruption to service. Any disruptions that might occur as a result of the service connections, service relocations or other similar improvements would be mitigated through careful coordination among participating agencies. Any disruption in electric service during the facility's construction phase would be temporary and kept to the shortest duration possible. Any other temporary impacts resulting from extending electric service would be minimized by ensuring that effective traffic safety and similar practices are implemented.

g. Potential Impacts - Natural Gas

While projecting natural gas demands and load estimates is dependent upon facility design, operation of a typical FCI and satellite camp is anticipated to require 50,000 to 70,000 thousand cubic feet (Mcf) of natural gas annually, a maximum usage of 25,000 cubic feet per hour, and a maximum daily usage of 250,000 cubic feet. Provision of natural gas to the proposed project would require connecting to Southern Star's 16-inch low pressure line on-site. This line is reported to have ample capacity to serve new customers. A two-inch diameter tap and associated metering station would be required to provide service.

Implementation of either of the development alternatives (FCI East-1 or East/West Composite Plan) does not involve relocation or disruption to existing on-site natural gas pipelines. Other than temporary impacts such as noise, dust and erosion resulting from the extension of a natural gas service line, no

significant adverse impacts would be anticipated to provide this service to the West Site. Constructing the system improvements needed to supply natural gas service and securing any required permits and approvals would be the responsibility of Southern Star. It is not expected that the proposed project would pose a significant adverse impact to current natural gas services or residential, commercial, or industrial customers in the region.

h. Recommended Mitigation - Natural Gas

Mitigation measures would include ensuring that any natural gas line relocation is carried out in conformance with applicable regulations and with a minimum of disruption to service. Any disruptions that might occur as a result of the service connection, relocation or other similar improvement would be mitigated through careful coordination among participating agencies. Diligent construction scheduling would also be exercised to ensure gas main relocation work occurs during off peak periods. Any disruption in gas service during the facility's construction phase would be temporary and kept to the shortest duration possible. Any other temporary impacts due to construction would be minimized by ensuring that effective traffic safety, dust, and soil erosion control practices are implemented.

i. Potential Impacts - Telecommunications

AT&T is the major provider of telecommunication services in the Fort Leavenworth area and owns the telecommunication infrastructure (i.e., poles, copper wire, and fiber optic) found throughout the area. Operation of the proposed FCI is expected to require approximately 100 pairs of voice circuits or optical carrier circuits and the availability of primary rate interface service. AT&T officials have indicated that copper cable, T1 service, and/or fiber optic cable exist in the vicinity of the USP Leavenworth and could be extended to either the East or West sites. AT&T, among other providers, also offers wireless communication service in the Fort Leavenworth area.

Cable television service is provided to the area by Time Warner Cable which also provides high-speed internet access. Company representatives indicated that cable service is available in the vicinity of both the East and West sites.

Construction activities necessary to extend telecommunications services to the selected development site(s) would be the responsibility of the local service providers. Other than temporary impacts such as noise, dust and traffic disturbance which may occur during the extension of telecommunications services, no significant adverse impacts are associated with providing these services. It is not anticipated that the proposed project would have a significant adverse impact on telecommunications services or customers in the area.

j. Recommended Mitigation - Telecommunications

Providing telecommunications service to the proposed project would not result in significant adverse impacts to current or future customers of the region. Temporary impacts such as noise, dust, and traffic disturbance may occur due to extending telecommunications infrastructure to serve the facility. However, such impacts would be minimized by ensuring that construction periods are kept to the shortest extent possible and effective traffic safety measures are implemented. Other than coordinating the telecommunications needs of the proposed facility with the appropriate providers, no other mitigation measures appear warranted.

k. Potential Impacts - Solid Waste

Construction and operation of the proposed project at any of the alternative sites would generate solid waste requiring collection and disposal by one or more of the private haulers which serve the Fort Leavenworth area. During the construction phase, solid waste in varying quantities would be generated by the building of structures, utilities, parking areas, etc. The disposal of construction-derived wastes would be the responsibility of the construction contractors involved, and is not anticipated to adversely impact solid waste collection and disposal services currently provided in the region.

Operation of the FCI would generate approximately 3.5 tons of solid waste per day (based on a typical generation of four pounds per inmate per day), or approximately 105 tons per month. Disposal of solid wastes would be the responsibility of the waste carter selected by the BOP upon activation of the proposed facility. The landfill serving the Fort Leavenworth area has sufficient long-term capacity to accommodate this volume of waste without significant adverse impact.

l. Recommended Mitigation - Solid Waste

Solid wastes generated during construction would be disposed of only at sites permitted for construction and demolition wastes. Waste generated during operation of the facility would be stored in on-site self-contained dumpsters until collection (on a regular schedule), then transported by licensed haulers to a transfer station or disposal site (landfill). The volume of solid waste generated by the proposed facility would not represent a significant proportion of the total load accepted for disposal in the region. Included as part of proposed facility operation, would be a recycling program to reduce the amount of solid waste requiring disposal. Furthermore, any toxic or hazardous wastes generated by the operation of the proposed facility would be handled and disposed of according to applicable regulations.

m. No Action Alternative

Under the No Action Alternative, the proposed FCI would not be developed at any of the alternative sites. Hence, impacts to water supply, wastewater collection and treatment, electric power, natural gas, telecommunications, and solid waste disposal services would not occur and mitigation measures would not be required.

Q. TRANSPORTATION SYSTEMS

1. Existing Conditions

The transportation network in the vicinity of USP Leavenworth consists of several major roadways and minor arterials (Exhibit III-7 – Area Roadways and Exhibit III-8- Local Roadways). Kansas City, located approximately 30 driving miles from USP Leavenworth, is at the intersection of three cross country interstate highways: Interstate 70 (I-70) extending through St. Louis, Missouri in the east and Denver, Colorado in the west; I-35 extending through Des Moines, Iowa northeast of Kansas City, and through Wichita, Kansas southwest of Kansas City; and I-29, extending along the Missouri River Valley north of Kansas City. Numerous other interstate highways provide access to the larger metropolitan area, including I-435 which is an outer ring route around the west side of Kansas City, connecting I-70, I-35 and I-29.

Access to USP Leavenworth is from Metropolitan Avenue. Metropolitan Avenue is one of the major east-west corridors in the City of Leavenworth and is an important link to communities across the Missouri

River to the east, and a link north to Atchison, Kansas. Metropolitan Avenue is the local name for Kansas State Route 7 (KS 7), which in the vicinity of USP Leavenworth, is also U. S. Route 73 (US 73). US 73/KS7, also known as Amelia Earhart Drive, extends northwest of Leavenworth making connections with Atchison, Kansas located approximately 25 miles north-northwest of Leavenworth. East of the USP, Metropolitan Avenue crosses the Centennial Bridge over the Missouri River. East of the river this highway is Missouri State Route 92 (MO 92), which makes connections with I-435. South of the USP and perpendicular to Metropolitan Avenue are local numbered and named streets in a predominantly residential part of Leavenworth.

Along the east side of the BOP property and extending north from Metropolitan Avenue is Grant Avenue, a restricted entrance to Fort Leavenworth. Slightly farther east is a secondary entrance to Fort Leavenworth at Sherman Avenue. Extending south from Metropolitan Avenue and opposite Grant Avenue is N. 7th Street, and opposite Sherman Avenue is N. 4th Street (a continuation of US 73 and KS 7).

Bisecting the western portion of the BOP property is County Route 14 (CR 14) and Hancock Avenue. CR 14 (also identified as Santa Fe Trail) extends north from Metropolitan Avenue and connects to Hancock Avenue, which provides restricted access to Fort Leavenworth. Extending south from Metropolitan Avenue opposite CR 14 is N. 20th Street. N. 20th Street, N. 10th Street and N. 7th Street are classified by Kansas Department of Transportation as major arterial streets.

Metropolitan Avenue in the vicinity of USP Leavenworth has two lanes in each direction (east and west). Between the eastbound and westbound lanes is one turning lane for left turns off the avenue. The roadway has an overall width of 62 feet, not including the curb and gutter[1]. Signalized intersections along Metropolitan Avenue are located at N. 4th Street (Sherman Avenue) and N. 7th Street (Grant Avenue) east of the BOP property. At the western end of the BOP property is a grade-separated intersection at N. 20th Street (Santa Fe Trail). The local numbered and named streets extending south of Metropolitan Avenue, have one lane in each direction and some have designated left turn lanes onto Metropolitan Avenue. The Metropolitan Avenue corridor is heavily traveled by automotive traffic with an average daily traffic volume ranging from 9,000 to 14,500 vehicles and a posted speed limit of 35 mph with many commercial drives on the south.

There are several entrances to the existing USP along Metropolitan Avenue. The main entrance, the employee entrance and a service entrance are located between N. 13th Street and N. 14th Street, and a service entrance is located opposite N. 12th Street. The proposed facility would have an entrance separate from those described for the existing USP. Access to the existing USP is also provided on CR 14 west of the BOP property, via an internal service road that also provides access to the existing FPC.

Average Annual Daily Traffic (AADT) volumes are available from the KDOT for streets in Leavenworth and Lansing, including counts along Metropolitan Avenue. The 2010 AADT volume on Metropolitan Avenue between Broadway and N. 8th Street was 12,900. Additionally, traffic KDOT counts were conducted as part of this EIS on Tuesday March 29, 2011 to capture a typical weekday at sites throughout the city, including Metropolitan Avenue west of N. 7th Street. These counts were conducted in 15-minute intervals throughout the 24-hour period. The hourly traffic volumes were summarized and the AM, midday, and PM peak hours were identified on Metropolitan Avenue west of N. 7th Street. The AM peak was identified between 7:00 and 8:00 AM with a total of 1,382 vehicles, the midday peak hour was between 12:00 noon and 1:00 PM with a total of 822 vehicles, and the PM peak hour was between 4:15 and 5:15 PM with a total of 1,402 vehicles (Table III-22).

[1] City of Leavenworth, *City-Wide Trail Master Plan,* 2010.

TABLE III-22
EXISTING PEAK HOUR TRAFFIC VOLUMES – METROPOLITAN AVENUE

	AM Peak 7:00-8:00 AM	Noon Peak 12:00 – 1:00 PM	PM Peak 4:15 – 5:15 PM
Traffic Volume	1,382	822	1,402

Source: Kansas Department of Transportation, *Daily Traffic Count, Metropolitan Avenue Traffic Study,* 2011.

There is no public transit service operating in Leavenworth County. The nearest bus service to the Leavenworth area is operated by Greyhound Bus Lines from Lawrence, Kansas and Dodge City Express operating from Shawnee, Kansas. Each is located approximately 40 miles from the City of Leavenworth.

2. Potential Impacts and Mitigation

Two scenarios are evaluated for potential impacts to traffic associated with the proposed project. One scenario places the FCI on the East Site and the FPC on the West Site (East/West Composite Alternative), while a second scenario would locate both facilities on the East Site (FCI East-1 Alternative).

For the East/West Composite Alternative, the main entrance to the FCI would be off Metropolitan Avenue opposite N. 10th Street and the entrance to the FPC would be off Santa Fe Trail north of Metropolitan Avenue. For the FCI East-1 Alternative, the main entrance for both the FCI and FPC would also be off Metropolitan Avenue opposite N. 10th Street. Such proposed location at N. 10th Street for the new main entrance (under either alternative) was chosen as N. 10th Street is a designated Minor Arterial (under KDOT's Urban Roadway Functional Classification) as opposed to any of the other intersections which are residential streets. In addition, and as per the Leavenworth Comprehensive Plan, the 10th Street corridor (in combination to 10th Avenue further south) carries the second largest north/south traffic volumes in the City, and it is a connecting link between Metropolitan Avenue on the north and Eisenhower Road on the south.

a. Potential Impacts - Construction Phase

The preliminary schedule for development of the FCI/FPC anticipates the start of design/construction in 2013/2014, completion of construction in 2016, and facility operation thereafter. Activities associated with FCI and FPC construction would be expected to increase traffic volumes along principal routes leading to and from the facilities as a result of worker trips to and from the site as well as the movement of construction materials, supplies, and equipment that collectively would be assigned to the local highway network. The number of construction workers on-site at any one time would vary depending on the phase of construction and at times would total several hundred. Truck movements would be distributed throughout the work day and would generally occur between the hours of 6:30 AM and 4:30 PM, depending on the stage of construction during the 36-month schedule.

As a matter of general practice, permissible traffic movements into and out of the BOP property and matters of temporary (construction) access from Metropolitan Avenue would be coordinated with the appropriate State of Kansas and county/local transportation agencies and officials during construction. While some minor impacts to traffic operations along principal access roadways would be expected during peak travel periods while construction is underway, any disruptions to normal traffic operations would be kept to the shortest duration possible. In addition, construction activities near the selected site, including any temporary access movements, would be coordinated with local law enforcement and traffic control agencies and personnel to ensure public safety. No other mitigation measures for

construction traffic, other than communication and coordination between the construction contractor and the appropriate transportation agencies and adherence to any applicable permit conditions, would be warranted.

b. Recommended Mitigation - Construction Phase

No significant adverse impacts to traffic conditions are anticipated during construction of the proposed facility. Mitigation measures are not warranted.

c. Potential Impacts - Operational Phase

Approximately 330 BOP employees are expected for operation of the FCI and 20 employees for operation of the FPC. In addition to employee trips to the facilities, other traffic to and from the facilities is expected (see discussion below). For the East/West Composite Alternative, it is assumed that traffic to and from the facilities would be divided between the FCI, using the facility entrance off Metropolitan Avenue opposite N. 10th Street, and the FPC, using the entrance off Santa Fe Trail. On a typical 24-hour weekday under this alternative, approximately 20 employee trips to and 20 employee trips from the FPC, distributed over three shifts (see below), and a small amount other traffic (visitors, deliveries, and inmate movements) would use the entrance off Santa Fe Trail. The majority of the traffic involved in operation of the facilities would use the entrance on Metropolitan Avenue north of N. 10th Street. Due to the small volume of traffic using the entrance off Santa Fe Trail, no impacts to traffic along Santa Fe Trail are expected under the East/West Composite Alternative. Traffic at the entrance opposite N. 10th Street under the East/West Composite Alternative would be slightly less than under the FCI East-1 Alternative.

When considering the effects to traffic from operation of the proposed project, the potential worst case scenario involves all traffic using the same entrance. Under the FCI East-1 Alternative, it is assumed that all traffic to and from the FCI and FPC would use the entrance on Metropolitan Avenue north of N. 10th Street. As such, the analysis that follows assumes all traffic entering and leaving the facility at that entrance.

Vehicular traffic, pedestrian and bicycle traffic, public transit and public parking facilities were considered in assessing potential transportation impacts associated with the proposed project. However, in establishing baseline transportation conditions, it was determined that there are no public transit routes, or public park-and-ride facilities located at or near the BOP property. Bicycle transportation to and from USP Leavenworth is a viable alternative to automobile use given the residential character of the area south of the facility and because the City of Leavenworth has existing and planned designated bicycle routes. Although commuting to the proposed facility via bicycle is viable, in order to capture a worst-case scenario, it is assumed that all employees will use single-occupancy vehicles for commuting.

Operation of the FCI would generate additional traffic on the roadways leading to the BOP property, consisting of commuting trips by BOP employees, visitor trips, service (delivery) vehicles, and vehicles involved with occasional inmate transportation. A greater number of trips by BOP staff traveling to and from the FCI would occur during typical weekdays than weekend days as trips by some administrative personnel and service vehicles do not occur on weekends. Therefore, traffic analyses on area roadways were conducted for typical weekday operations.

Employee Trips

Approximately 330 BOP employees are expected to be assigned to FCI operation and 20 employees to be assigned to the FPC, with employment distributed for both facilities among three shifts to accommodate 24-hour a day operations: 8:00 AM to 4:00 PM (Shift 1); 4:00 PM to 12:00 Midnight (Shift 2); and 12:00 Midnight to 8:00 AM (Shift 3). From information gathered from similar BOP facilities, it is anticipated that approximately 50 percent of the staff (or approximately 175 employees) would be assigned to Shift 1, 35 percent (or 123 employees) to Shift 2, and 15 percent (or 52 employees) to Shift 3 (Table III-23).

TABLE III-23
FCI/FPC EMPLOYEE TRIP DISTRIBUTION

Employee Shifts	Distribution Percentage	Number of Employees
Shift 1: 8 AM to 4 PM	50%	175
Shift 2: 4 PM to 12 Midnight	35%	123
Shift 3: 12 Midnight to 8 AM	15%	52
Total	**100%**	**350**

Source: The Louis Berger Group, Inc, 2011.

Regarding employee-generated vehicle volumes, it is assumed that employees would enter the site 30 minutes before their shifts begin and would depart 30 minutes after their shifts end. Therefore, the AM peak hour is expected to be from 7:30 to 8:30 AM, accounting for employees arriving for Shift 1 and departing from Shift 3 (Table III-24). The highest projected employee-generated traffic volumes on local roads would occur between 3:30 and 4:30 PM, during which the Shift 1 staff would depart the FCI and Shift 2 staff would arrive at the facility. Assuming a scenario involving only single occupancy vehicles, approximately 123 vehicles would enter and 175 vehicles would exit the site during the afternoon peak hour (Table III-24).

TABLE III-24
PROJECT-GENERATED EMPLOYEE VEHICLE TRIPS

Peak Hours	Enter	Exit	Total
AM Peak Hour (7:30 -8:30 AM)	175	52	227
PM Peak Hour (3:30-4:30 PM)	123	175	298

Source: The Louis Berger Group, Inc, 2011.

Visitor Trips

The number of visits by inmate friends, family members, attorneys and others to federal correctional facilities are based largely on operating policies and regulations set by BOP management staff. In setting rules, BOP officials seek to balance many day-to-day management considerations, including public safety and security of the institution, the physical limitations of each institution's visiting area, etc., resulting in wide latitude in visitation patterns. Variations of visitation patterns at BOP facilities make it difficult to apply experience at other facilities directly to visitation rates at the proposed FCI. However, according to the BOP, a high proportion of federal inmates are single, widowed, divorced, or separated and as a result, family visitation (and permanent relocation rates) for these inmates can be expected to be lower than for married inmates. In addition, family relocations to areas with federal correctional facilities

reportedly occur infrequently due to the expense associated with relocation and the inability of the remaining household members to afford the costs of relocation.

Social visiting hours at BOP institutions are generally scheduled to avoid shift changes and peak hour traffic impacts. As a result, arrivals and departures of visitors to the proposed FCI are expected to be distributed throughout off-peak hour periods, and thus would not contribute to peak-hour traffic volumes.

Service Vehicle Trips

Other trips generated by federal correctional facilities include those required to obtain the supplies and provisions necessary for day-to-day operation together with those required for waste pick-up and removal, etc. Based on experiences from other BOP correctional facilities, these service trips would also be confined largely to off-peak travel periods. Nonetheless, for purposes of this analysis three service vehicles arriving and departing the proposed FCI during both the AM and PM peak hours have been assumed. (Table III-25 assumes a "passenger car equivalent" ratio for delivery trucks at 2:1, i.e., every delivery truck is counted as two passenger cars.)

TABLE III-25
TOTAL PROJECT-GENERATED VEHICLE TRIPS

Trip Type	7:30 to 8:30 AM			3:30 to 4:30 PM		
	Enter	Exit	Total	Enter	Exit	Total
Employee Trips	175	52	**227**	123	175	**298**
Visitor Trips (P.C.E.)*	0	0	**0**	0	0	**0**
Delivery Vehicles (P.C.E.)*	3	3	**6**	3	3	**6**
Inmate Trips (P.C.E.)*	0	6	**6**	6	0	**6**
Total Trips	**178**	**61**	**239**	**132**	**178**	**310**

Source: The Louis Berger Group, Inc, 2011.

Inmate Trips

Among the BOP's many responsibilities is to transport inmates for medical attention, judicial appointments, and to detention in other correctional facilities. While it is not expected that these trips would occur during peak hours, to best present a conservative assessment, it has been assumed that six vehicles would depart the proposed facility during the AM peak hour and return during the PM peak hour.

Total Vehicle Trips

A summary of project-generated vehicle trips associated with FCI and FPC operation is shown in Table III-25. During the 7:30 to 8:30 AM peak, 178 vehicles would enter the facility and 61 would exit for a total of 239 vehicles. During the 3:30 to 4:30 PM peak, 132 vehicles would enter the facility and 178 would exit, for a total of 310 vehicles.

The existing traffic volumes during these peak hour periods (7:30-8:30 AM and 3:30-4:30 PM) are presented in Table III-26 along with the project-related contribution and the sum of the two, and for comparison, the existing volumes during the two Metropolitan Avenue peak hours (7:00 to 8:00 AM and 4:15 to 5:15 PM). As identified earlier local peak hour and project-related peak hour overlap only for

TABLE III-26
EXISTING AND PROJECT-RELATED TRAFFIC VOLUMES DURING PROJECT PEAK PERIODS

	7:30-8:30 AM Peak	3:30-4:30 PM Peak
Existing Volume*	1,120	1,318
Project-Related Contribution**	239	310
Total	1,359	1,628
Existing Peak Volumes	1,382 (7:00 – 8:00 AM Peak)	1,402 (4:15 – 5:15 PM Peak)

*Source: Kansas Department of Transportation, Daily Traffic Counts, Metropolitan Avenue Traffic Study, 2011.
**Source: The Louis Berger Group, Inc. 2011.

one half-hour period in the morning – 7:30-8:00 AM, and for 15 minutes during the afternoon – 4:15-4:30 PM.

Based on the estimated volume of project-related traffic arriving at and departing from the proposed FCI, 239 vehicles would be added to Metropolitan Avenue during the 7:30 to 8:30 AM peak hour, and 310 vehicles would be added during the 3:30 to 4:30 PM peak hour. As seen in Table III-26, the projected future traffic volume on Metropolitan Avenue during the 7:30 to 8:30 AM peak hour is slightly lower than the existing 7:00 – 8:00 AM Peak hour. Therefore, it is expected that the proposed FCI would have a significant traffic impact during the AM peak hour. For the PM peak hour, the projected future traffic volume on Metropolitan Avenue during the 3:30 to 4:30 PM peak hour is also higher than the existing 4:15 – 5:15 PM peak hour volumes.

Out of the current USP Leavenworth employee population (381 employees), an analysis of residential Zip Code data revealed that approximately 65 percent (about 248 employees) live in Kansas, while approximately 35 percent (about 133 employees) live in Missouri. Of those living in Kansas, only 28 (or 7.3 percent) of the total 381 current employees population) live in Zip Code areas located west of the proposed project; leaving the rest (220 employees or 57.7 percent of the total 381 current employees) residing south of the proposed project site.

Assuming the same regional distribution of employees' residences (as discussed above), the projected new vehicle trips were distributed to the street network based on the Zip Code data and are presented in Table III-27. These new vehicle trips would be distributed in the eastbound and westbound directions on Metropolitan Avenue and also in the northbound and southbound directions on N. 4th and N. 10th Streets. The projected increase in traffic may increase delays at key intersections (i.e. N. 10th Street/Site Driveway, N. 7th Street/Grant Avenue, and N. 4th Street/Sherman Avenue) along Metropolitan Avenue.

The above analysis is based on expected conditions resulting from development of the FCI East-1 Alternative. Unlike the East/West Composite Alternative, where the FCI and the FPC would use two entrances approximately one mile apart, the FCI East-1 Alternative assumes both the FCI and the FPC would use the same entrance. Since 94 percent of the 350 new BOP employees are associated with FCI operation and only six percent of the new employees are associated with FPC operation, it is expected that traffic conditions under the East/West Composite Alternative would be similar to the FCI East-1 Alternative. Therefore, no additional analysis is required for the East/West Composite Alternative.

TABLE III-27
PROJECT-RELATED TRIP DISTRIBUTIONS

Origin-Destination (From/To)	Routes	Distribution	7:30 to 8:30 AM			3:30 to 4:30 PM		
			Enter	Exit	Total	Enter	Exit	Total
East	Metropolitan Avenue	35%	62	21	**83**	46	62	**108**
West	Metropolitan Avenue	7.3%	15	4	**17**	10	14	**24**
South	10th and 4th Streets, then Metropolitan Avenue	57.7%	101	36	**137**	76	102	**178**
		100.0%	**178**	**61**	**239**	**132**	**178**	**310**

d. Recommended Mitigation - Operational Phase

Given several on-going planning studies or committed projects (either near- or long-term) along Metropolitan Avenue in Leavenworth, the City of Leavenworth, Leavenworth County, the Kansas DOT, the Missouri DOT, the BOP and the United States Army are participating in a comprehensive traffic study along Metropolitan Avenue in order to better understand potential development activities and identify transportation improvements necessary to keep traffic moving safely and efficiently through the area. Individually or combined, the traffic generated by these initiatives may indeed warrant improvements to Metropolitan Avenue (aka, US Highway 73, Kansas Highway 7) and across the Missouri River along Route 92 in Missouri.

This comprehensive study has also been predicated by the eventual replacement of the Centennial Bridge, which lies just east of USP Leavenworth. Replacement of this bridge would likely require a new alignment so that traffic could be carried on the old structure during construction. For planning purposes this study will identify areas likely to be impacted by this new bridge alignment. It is envisioned the agencies will work together to discourage development in these locations, thereby reducing the likelihood of costly acquisitions as part of the Centennial Bridge replacement project. In short, this study is also a proactive measure to preserve safe and efficient traffic movement and minimize bridge replacement costs.

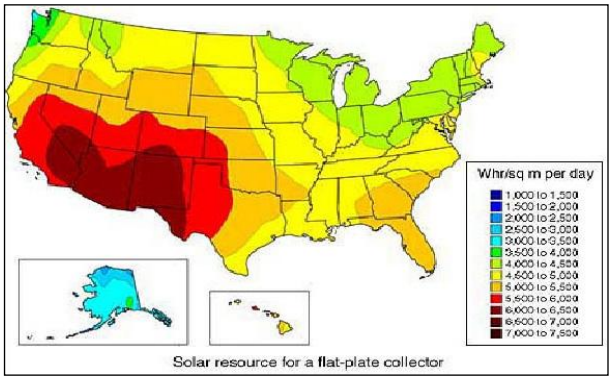
In any event and regardless of a potential replacement to the Centennial Bridge, the BOP will continue to coordinate with KDOT and the City of Leavenworth to determine the need for traffic improvements along Metropolitan Avenue. Most importantly and at the stage of final design, it is anticipated that the new entrance will be designed in compliance with all standards and criteria listed in the KDOT Corridor Management Policy.

e. No Action Alternative

Under the No Action Alternative, the proposed FCI would not be developed at USP Leavenworth. Hence, impacts to transportation systems would not occur and mitigation measures would not be required.

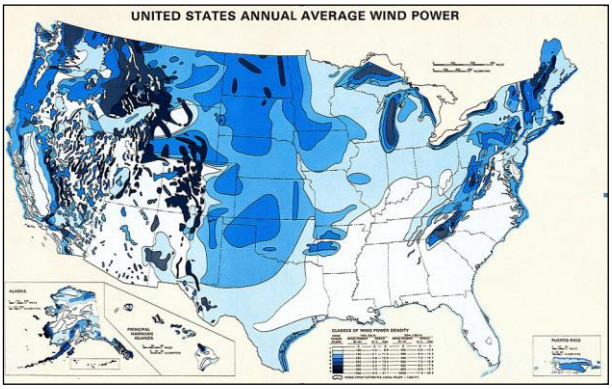
R. METEOROLOGY

1. Existing Conditions



Solar resource for a flat-plate collector

Kansas experiences four distinct seasons with cold winters and hot, dry summers common. According to monthly climate summaries provided by the U.S. National Climatic Data Center, temperatures in the Leavenworth area, over the course of a year, range from an average low of about 20° Fahrenheit (F) in January to an average high of nearly 90° F in July. The maximum temperature reaches 90° F an average of 44 days per year and reaches 100° F an average of four days per year. The minimum temperature falls below the freezing point on average 114 days per year. Typically, the first fall freeze occurs between the last week of September and the first day of November, and the last spring freeze occurs between the last day of March and the final week of April.



The Leavenworth area receives nearly 41 inches of precipitation during an average year with the largest share being received in May and June. There are, on average, 93 days of measurable precipitation per year. Winter snowfall averages about 10 inches, but the median is less than three inches. Measurable snowfall occurs, on average, four days per year with at least one inch of snow being received on three of those days. The Leavenworth County area and the State of Kansas rank high as compared to the rest of the U.S. in average daily wind speed. The Leavenworth area also has a history of severe weather (i.e., tornado activity) with occurrences more common than Kansas and U.S averages.

2. Potential Impacts and Mitigation

a. Potential Impacts

Development of the FCI and FPC would alter the microclimate of wind and temperature at the project site, but only slightly. Due to its scale relative to its environs, the proposed project would not change the larger-scale climatology of the area or have a significant impact upon meteorological conditions affecting surrounding properties.

Council on Environmental Quality guidelines suggest that two aspects of global climate change should be considered in the preparation of environmental documents: the potential for federal actions to influence global climatic change, e.g., increased emissions of chlorofluorocarbons (CFRs), halons, or greenhouse gases; and the potential for global climate changes to affect federal actions, e.g., feasibility of coastal projects in light of projected sea level changes. The proposed federal action addressed by this document is expected to result in no significant emission of CFR's, halons, or greenhouse gases. In addition, the National Academy of Sciences estimate that increases in carbon dioxide concentrations

over the next 40 to 50 years would lead to global warming of 1.5 to 4.5 degrees Celsius (three to eight degrees Fahrenheit). It is expected that the proposed project will be unaffected by a potential climatic change of this magnitude. Furthermore, the alternative project sites are not located in coastal environments and, therefore, the proposed project would not be affected by changes in sea levels.

b. Recommended Mitigation

Measures to mitigate local weather modifications are not warranted. Any meteorological impacts resulting from the proposed action would be of a micro-climatic nature. The meteorological conditions characteristic of the project site are such that no extraordinary design features are necessary to adapt the facility to local climatic conditions.

c. No Action Alternative

Under the No Action Alternative, the proposed project would not be developed at the USP Leavenworth property. Hence, impacts to meteorological conditions would not occur and mitigation measures would not be required.

S. AIR QUALITY

1. Existing Conditions

a. Definition of Air Pollutants

The USEPA defines ambient air quality in 40 CFR 50 as *"that portion of the atmosphere, external to buildings, to which the general public has access."* In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Amendments (CAAA), USEPA has designated criteria air pollutants in which ambient air quality standards have been established. Ambient air quality standards are intended to protect public health and welfare and are classified as either primary or secondary standards. Primary standards define levels of air quality necessary to protect the public health. National secondary ambient air quality standards define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Human welfare is considered to include the natural environment (soil, water vegetation) and the manmade environment (physical structures).

Primary and secondary standards have been established for carbon monoxide (CO), one-hour and eight-hour ozone (O_3), sulfur dioxide (SO_2), total and inhalable particulates (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_x) and lead (Pb). Hydrocarbon standards have been rescinded because these pollutants are primarily of concern only in their role as ozone precursors. In addition to retaining PM_{10} standards, the USEPA has adopted 24-hour and annual standards for $PM_{2.5}$, or particulate matter with an aerodynamic equivalent diameter less than 2.5 micrometers (µm). Adoption of the $PM_{2.5}$ standard in 1997 was intended to provide increased protection of public health from fossil fuel combustion.

Areas that do not meet the National Ambient Air Quality Standards (NAAQS) for a particular pollutant are called "non-attainment areas" for this criteria pollutant; areas that meet both primary and secondary standards are known as "attainment areas." Areas determined to be in recent attainment are known as "maintenance areas". Under the CAA and the CAAA, state and local air pollution control agencies have the authority to adopt and enforce ambient air quality standards (AAQS) more stringent than the NAAQS. With the exception of lead, which was phased out during 1998, (due in large part to the significant drop in measured values caused by the elimination of lead compounds as an additive in

DESCRIPTION OF NAAQS CRITERIA POLLUTANTS

Sulfur Dioxide (SO_2): A toxic, colorless gas with a distinctly detectable odor and taste. Oxides of sulfur in the presence of water vapor, such as fog, may result in the formation of sulfuric acid mist. Human exposure to SO_2 can result in irritation to the respiratory system, which can cause both temporary and permanent damage. SO_2 exposure can cause leaf injury to plants and suppress plant growth and yield. SO_2 can also cause corrosive damage to many types of manmade materials.

Particulates ($PM_{2.5}$)/(PM_{10})/(TSP): Particulates originate from a variety of natural and anthropogenic sources. Some predominant anthropogenic sources of particulates include combustion products (wood, coal and fossil fuels), automotive exhaust (particularly diesels), and windborne dust (fugitive dust) from construction activities, roadways and soil erosion. Human exposure to inhalable particulate matter affects the respiratory system and can increase the risk of cancer and heart attack. Small particulates affect visibility by scattering visible light and when combined with water vapor can create haze and smog. Micron and submicron particles are those that assume characteristics of a gas and remain suspended in the atmosphere for long periods of time. Until recently, particulate pollution had been measured in terms of total suspended particulates (TSP). These standards were been replaced with revised measurements of particulate matter under 10 microns in diameter (PM_{10}) in 1987. Particles less than 10 micrometers in diameter (PM_{10}) pose a health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter ($PM_{2.5}$) are referred to as "fine" particles and are believed to pose the largest health risks. In 1997, USEPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. In 2006, USEPA revised the 24-hour NAAQS for $PM_{2.5}$.

Carbon Monoxide (CO): A colorless, odorless, tasteless and toxic gas formed through incomplete combustion of crude oil, fuel oil, natural gas, wood waste, gasoline and diesel fuel. Most combustion processes produce at least a small quantity of this gas, while motor vehicles constitute the largest single source. Human exposure to CO can cause serious health effects before exposure is ever detected by the human senses. The most serious health effect of CO results when inhaled CO enters the bloodstream and prevents oxygen from combining with hemoglobin, impeding the distribution of oxygen throughout the bloodstream. This process significantly reduces the ability of people to do manual tasks, such as walking.

Nitrogen Dioxide (NO_2): A reddish-brown gas with a highly detectable odor, which is highly corrosive and a strong oxidizing agent. Nitric oxide (NO) and nitrogen dioxide (NO_2) constitute what is commonly referred to as nitrogen oxides (NO_x). NO_x are formed by all combustion and certain chemical manufacturing operations. During combustion, nitrogen (N) combines with oxygen (O) to form NO. This combines with more oxygen to form NO_2. Under intense sunlight, NO_2 reacts with organic compounds to form photochemical oxidants. Oxidants have a significant effect on atmospheric chemistry and are gaseous air pollutants that are not emitted into the air directly. They are formed through complex chemical reactions which involve a mixture of NO_x and reactive volatile hydrocarbons (VOC) in the presence of strong sunlight. Human exposure to NO_2 can cause respiratory inflammation at high concentrations and respiratory irritation at lower concentrations. NO is not usually considered a health hazard. NO_x reduce visibility and contribute to haze. Exposure to NO_x can cause serious damage to plant tissues and deteriorate manmade materials, particularly metals.

Ozone (O_3): An oxidant that is a major component of urban smog. O_3 is a gas that is formed naturally at higher altitudes and protects the earth from harmful ultraviolet rays. At ground level, O_3 is a pollutant created by a combination of VOC, NO_x and sunlight, through photochemistry. Ground-level O_3 is odorless and colorless, and is the predominant constituent of photochemical smog. Human exposure to O_3 can cause eye irritation at low concentration and respiratory irritation and inflammation at higher concentrations. Respiratory effects are most pronounced during strenuous activities. O_3 exposure will deteriorate manmade materials and reduce plant growth and yield.

Lead (Pb): Lead is in the atmosphere in the form of inhalable particulates. The major sources of atmospheric lead are motor vehicles and lead smelting operations. The USEPA estimates that ambient concentrations have decreased dramatically in recent years (a drop of 70 percent since 1975) largely due to the decreasing use of leaded gasoline. Health effects from atmospheric lead occur through inhalation and consequent absorption into the bloodstream. Excessive lead accumulation causes lead poisoning with symptoms such as fatigue, cramps, loss of appetite, anemia, kidney disease, mental retardation, blindness and death.

Source: The Louis Berger Group, Inc., 2011.

gasoline), the State of Kansas has adopted the NAAQS that specify maximum permissible short-term and long-term emissions of the criteria pollutants. National and State of Kansas ambient air quality standards are provided in Table III-28.

b. Regulatory Responsibilities

Although the USEPA has the ultimate responsibility for protecting ambient air quality, each state and delegated local agency has the primary responsibility for air pollution prevention and control. The CAA requires that each state submit a State Implementation Plan (SIP), which describes how the state will attain and maintain air quality standards in non-attainment areas. The SIP must be approved by the USEPA for each criteria pollutant. The agency responsible for implementing the SIP in Kansas is the KDHE, Bureau of Air and Radiation.

c. Baseline Conditions

Air quality is monitored by the KDHE at the air monitoring station at USP Leavenworth. According to the Green Book published by the USEPA (last updated August 30, 2011), Leavenworth County is classified by the USEPA as being in attainment for all six of the NAAQS criteria pollutants. There are no major air pollution emission sources located in proximity to the proposed project site.

2. Potential Impacts and Mitigation

Potential air quality impacts as a result of the proposed project may occur from construction activities, routine operations, and motor vehicle traffic associated with facility operation. These potential impacts and mitigation recommendations, if necessary, are discussed below.

a. Potential Impacts - Construction Activities

The proposed project would include various construction activities extending over an approximate 36-month period. Construction methods, sequencing and duration for certain aspects are fairly well known as the BOP has been actively and continuously developing similar correctional facilities for most of the past two decades. These actions include, for example, site security, preparation of the project site for construction, utility connections, facility construction, etc. Reasonable assumptions have been made for construction methods, sequencing and schedule since the specific design, materials and equipment are not fully known.

Construction Process

To understand potential air quality impacts associated with construction activities, one requires familiarity with the construction process itself. The following provides an overview of the construction process involving a typical federal correctional facility as it may potentially affect air quality. The construction process for the FCI and FPC would be similar other facilities located throughout the north-central region.

- **Site Clearing and Preparation**

Initial site clearing and preparation would involve the use of heavy equipment to remove all vegetation and carry out preliminary site grading within the construction zone so as to establish level building locations. Other necessary site preparation activities which would be undertaken during this stage

TABLE III-28
NATIONAL AND STATE OF KANSAS AMBIENT AIR QUALITY STANDARDS

Pollutant	National		State of Kansas	
	Primary Standard	**Secondary Standard**	**Primary Standard**	**Secondary Standard**
Carbon Monoxide				
Maximum 1-hour Average[a]	35 ppm	35 ppm	35 ppm	35 ppm
Maximum 8-hour Average[a]	9 ppm	9 ppm	9 ppm	9 ppm
Sulfur Dioxide				
Annual Arithmetic Mean	80 µg/m^3	---	80 µg/m^3	---
Maximum 24-hour Average[a]	365 µg/m^3	---	365 µg/m^3	---
Maximum 3-hour Average[a]	---	1,300 µg/m^3	---	1,300 µg/m^3
Particulate Matter—PM_{10}				
Maximum 24-hour Average[b]	150 µg/m^3	150 µg/m^3	150 µg/m^3	150 µg/m^3
Particulate Matter—$PM_{2.5}$				
Annual Geometric Mean	15 µg/m^3	15 µg/m^3	15 µg/m^3	15 µg/m^3
Maximum 24-hour Average[c]	35 µg/m^3	35 µg/m^3	35 µg/m^3	35 µg/m^3
Ozone				
1-hour Maximum	0.12 ppm	0.12 ppm	0.12 ppm	0.12 ppm
8-hour Average	0.08 ppm	0.08 ppm	0.08 ppm	0.08 ppm
Nitrogen Dioxide				
Annual Arithmetic Mean	100 µg/m^3	100 µg/m^3	100 µg/m^3	100 µg/m^3
Lead				
Maximum Arithmetic Mean over a Calendar Quarter	1.5 µg/m^3	1.5 µg/m^3	N/A	N/A

Notes:
a - Maximum concentration not to be exceeded more than once per year.
b - Not to be exceeded by 99th percentile of 24-hour PM_{10} concentration in a year (averaged over three years).
c - Not to be exceeded by 99th percentile of 24-hour $PM_{2.5}$ concentration in a year (averaged over three years).
ppm: parts per million.
µg/m^3: micrograms per cubic meter.
Source: 40 CFR 50, and KDHE, Bureau of Air and Radiation (March, 2011).

include initial installation of underground utilities, soil erosion and sediment control measures, stormwater control measures, and similar preliminary site work.

- **Excavations and Foundations**

Following initial site clearing and preparation, construction of the foundations and any below-grade components would commence. Excavation typically includes the use of heavy equipment to excavate and remove material in preparation for foundation construction. Foundation work would include preparation of forms and the pouring of concrete footings and the foundation slabs. Heavy trucks would deliver concrete and other supplies to the project site and licensed commercial carters would remove wastes for off-site recycling or final disposal in a licensed disposal (i.e., landfill) facility.

- **Building Construction**

This stage would include construction of the proposed structures (steel, concrete, reinforced concrete, etc.); the building facades (exterior walls and cladding); and roof. During this stage of construction, pouring of each building's concrete floors would occur. Installation of each structure's core, which consists of vertical riser systems for mechanical, electrical, and plumbing, as well as the satellite electrical and mechanical equipment rooms, individual cells, and plumbing facilities, would start during this stage and continue through the interior construction and finishing stage. These activities could require the use of cranes, derricks, exterior hoists, delivery trucks, forklifts, man lifts, and other similar equipment. Cranes would be used to lift structural components, facade elements, large pieces of equipment, etc. Heavy trucks would continue to deliver materials and licensed commercial carters would continue to remove construction debris. Construction of each structure's core and shell would be expected to overlap with interior construction and finishing.

- **Interior Construction and Finishing**

Installation of interior mechanical, electrical, and plumbing systems would continue during this stage and include installation of heating, ventilation, and air conditioning equipment and ducting, installation of electric lines within the buildings, and interior installation of water supply and wastewater piping. Installation and checking of life safety systems would also take place at this time as would construction of interior walls systems and interior finishes (i.e., flooring, painting, etc.).

Typical Construction Equipment and Scheduling

Typical construction equipment used for site excavation and pouring the foundation would include excavators, bulldozers, backhoes, tractors, hammers, cranes and concrete pumping trucks. Equipment that would be used in construction would include mobile cranes, hoist complexes, dump trucks and loaders, concrete trucks, backhoes, and other pieces of large equipment. Trucks would arrive at the site with pre-mixed concrete and other building materials, and would remove any excavated material and construction debris. Typical equipment used during construction of the superstructure and framing would include cranes, compressors, hoists, and welding machines. During roof construction, hoists and cranes would continue to be used. Trucks would remain in use for material supply and construction waste removal.

Staging areas would be needed for all aspects of the construction phase and would be located within the site. While placement of individual equipment would not be determined until a detailed development

program has been outlined, it is anticipated that all of the construction activity can be accommodated on-site, with no off-site staging.

Potential Air Quality Impacts

Construction-related impacts to air quality are generally limited to fugitive dust emissions that would occur in and around the selected project site resulting from site preparation and construction operations. Fugitive dust emissions typically occur during ground clearing and preparation, site grading, the stockpiling of materials, on-site movements of construction equipment, and the transportation of construction materials to and from the site. Actual quantities of fugitive dust emissions depend on the extent and nature of the clearing operations, the type of equipment employed, the physical characteristics of the underlying soil, the speed at which construction vehicles are operated, and the type of fugitive dust control methods employed. Much of the fugitive dust generated by construction activity consists of relatively large-size particles. These particles would settle within a short distance from the construction work areas and, as a result, not significantly impact neighboring properties or residents of the vicinity of the project site.

The potential for air quality impacts during construction would be temporary, occurring only while construction is in progress and during certain meteorological conditions. Fugitive dust emissions can occur during dry weather periods, periods of maximum construction activity, and high wind conditions. Any such impacts would be short-term and can be minimized if construction equipment is well maintained, operated in well-ventilated areas, and good engineering practices are followed.

b. Recommended Mitigation - Construction Activities

To mitigate potential air quality impacts during construction, best management practices would be incorporated within standard operating procedures for site construction activities. Such practices to limit adverse air quality impacts during construction include using properly maintained equipment, limiting unnecessary idling times on diesel powered engines, using tarp covers on trucks transporting materials to and from the construction site, periodically wetting unpaved surfaces to suppress dust, and prohibiting the open burning of construction wastes on-site. In addition, construction equipment would be maintained and operated in accordance with the manufacturer's' specifications to further minimize air emissions. Restoration of the ground surface by the introduction of grass or native ground-cover following completion of construction would further minimize fugitive dust emissions.

c. Potential Impacts - Correctional Facility Operation

The following provides an overview of the potential air quality impacts associated with operation of a typical federal correctional facility. Systems for heat and hot water would be installed at the proposed FCI and FPC and would be the primary stationary source of potential air quality impact. The final choice of fuel would be determined by fuel availability, costs, and other considerations. However, it is anticipated that the volume of combustion emission by-products from the selected fuel would not have a significant impact on air quality.

The proposed FCI would also be equipped with one or more standby generators to produce electrical energy in the event of a power failure. The standby generator(s) would be installed in conformance with all applicable regulations for use on a contingency basis. Emissions from maintenance, periodic testing, and emergency operation of the generator(s) are not expected to exceed New Source Review requirements or result in a significant increase in CO or NOx levels.

d. Recommended Mitigation - FCI Operation

Other than selection of energy-efficient equipment that meets all applicable permitting and emission control standards, no mitigation measures are warranted. Potential air quality impacts during facility operation would be minimized by designing and constructing new BOP facilities to be energy-efficient, thereby minimizing the use of fossil fuels and the potential emission of air pollutants.

e. Potential Impacts - Transportation Activities

Motor vehicle operations represent an additional potential source of project-related air quality impacts. For air quality assessments of motor vehicle emissions, the major issues are microscale impacts (localized areas immediately adjacent to the roadways) and mesoscale impacts (the area comprising the entire region). The predominant air quality impact associated with motor vehicle-related emissions is CO, HC, and NOx with HC and NOx emissions precursors for the formation of ozone. A review of the trip-generation tables (Table III-24) indicates that approximately 310 vehicle trips would be generated during the PM peak hour during weekday operation of the FCI/FPC only, with most visitor and service/delivery vehicle traffic occurring during off-peak hours. Little if any adverse impact to air quality is anticipated from this relative small increase in traffic volumes. Microscale modeling of vehicular emissions was not conducted because of the already low volumes of traffic along principal access routes leading to the USP Leavenworth property.

Reductions in vehicular emissions resulting from continually improving emissions-control technology further preclude the likelihood of any significant air quality impacts. Motor vehicle traffic associated with the proposed project is not expected to pose local or regionally significant adverse impacts to air quality.

f. Recommended Mitigation - Transportation Activities

Agencies of the federal government, including the BOP, routinely encourage the formation of carpools and vanpools and, where available, the use of public transit to minimize the potential for air quality impacts from motor vehicle operations. Encouraging the use of carpools and vanpools offers a particularly viable option given the exclusive reliance on private auto use for accessing the project site and the large pool of workers traveling daily to the USP Leavenworth property. The analysis of potential air quality impacts has indicated that no mitigation beyond these actions would be warranted.

g. Potential Impacts - Radon

Radon is a colorless, odorless, tasteless gas produced by the natural breakdown of uranium in soil and rocks. Decay of radon, which has a half-life of 3.8 days, results in such by-products as polonium, bismuth, astatine, and lead. When inhaled over a long period of time, these radioactive by-products can cause lung cancer. Radon is the second most frequent cause of lung cancer with between 15,000 and 22,000 lung cancer deaths attributed to radon each year in the U.S.

Because radon is a gas, it can migrate through rocks and soils, escaping into fractures and openings in rocks and into groundwater. Radon migrates more readily through permeable soils such as sand and gravel and through fractures in rocks. Radon moving through soil near the ground surface usually escapes into the atmosphere. However, radon gas may migrate into buildings through construction joints, foundation cracks, etc. Even if soil air contains only moderate levels of radon, concentrations

within buildings may be high. The USEPA action level (the level at which measures should be taken to reduce radon concentrations) is four picocuries per liter of air (pCi/L). Approximately seven percent of homes in the U.S. have radon levels exceeding the recommended action level. As reported by the KDHE and shown in Exhibit III-12, portions of northeastern Kansas (including the City of Leavenworth and eastern Leavenworth County) exhibit high potential for radon (screening levels averaging over four pCi/L) while much of western Leavenworth County and southeastern Kansas has only moderate potential (between two and four pCi/L).

h. Recommended Mitigation - Radon

As noted above, radon can migrate through rocks and soils and while most radon escapes harmlessly into the atmosphere, it can migrate into buildings through construction joints, foundation cracks, etc. In response, the BOP intends to:

- Develop the proposed project on slab foundations with none of the structures expected to incorporate basements where radon can collect in concentrations that could exceed the USEPA action level.

- Retain a Design/Build team composed of architects, engineers and construction contractors with knowledge of local conditions (eastern Kansas) and experience developing public institutions in similar environments to ensure building designs that minimize the potential for radon to accumulate in concentrations exceeding the USEPA action level.

- Inform facility operating personnel to the potential for radon to occur in Leavenworth County and the availability and use of testing equipment to ensure concentrations do not exceed the USEPA action level.

i. Conformity Applicability Analysis

In order to ensure that federal activities do not hamper local efforts to control air pollution, Section 176(c) of the Clean Air Act prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, licensing, or approving any action which does not conform to an approved state or federal implementation plan. With the BOP proposing development of an additional correctional facility at USP Leavenworth, compliance with federal regulations is necessary.

The USEPA developed two major rules for determining conformity of federal activities: conformity requirements for transportation plans, programs and projects ("transportation conformity"—40 CFR, Part 51); and all other federal actions ("general conformity"—40 CFR, Part 93). These rules apply to projects located within NAAQS non-attainment areas. The Leavenworth area within which the project site is located, is designated in attainment for NAAQS pollutants. In an attainment area, the conformity regulations do not apply.

j. Federal Operating Permit (Title V)

All new and existing facilities are required to obtain a Federal Operating Permit, also known as Title V if potential and/or actual emissions of air contaminants exceed designated "major source" thresholds. Major source thresholds are determined based upon the attainment status of the area where the facility is located. For Kansas, major source thresholds are set at 100 tons per year (tpy) of any regulated pollutants and 25 tpy of any combination of hazardous air pollutants (HAPs) or 10 tpy of any individual

HAP. Additionally, pollutants designated as non-attainment may have more stringent thresholds based upon the designation. If the proposed FCI's potential and actual emissions were to exceed the Title V thresholds then the institution would be required to file a Title V application with the State of Kansas.

A review of emissions from similar BOP facilities has revealed that proposed project emissions would fall below these limits. As such, the proposed facility would not be a major Title V source and would not be required to file a Title V permit. The BOP would be, however, required to file applications for authority to construct and operate for all individual sources as required by state and local regulation.

k. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed at the USP in Leavenworth. Hence, impacts to air quality would not occur and mitigation measures would not be required.

T. NOISE

1. Existing Conditions

Noise is traditionally defined as any unwanted sound. It is emitted from many sources including aircraft, industrial facilities, railroads, power generating stations, and motor vehicles. Among the most common, motor vehicle noise is usually a composite of noises from engine, exhaust and tire-roadway interaction. The magnitude of sound, whether wanted or unwanted, is usually described by sound pressure, i.e., a dynamic variation in atmospheric pressure. The human auditory system is sensitive to fluctuations in air pressure above and below the barometric static pressure. These fluctuations are defined as sound when the human ear is able to detect pressure changes within the audible frequency range.

Since the sound pressure varies greatly, a logarithmic scale is used to relate sound pressures to a common reference level and is represented as the decibel (dB). The decibel is the standard unit for sound measurement and represents acoustical energy present in the environment. Humans are capable of hearing only a limited frequency range of sound. Generally, humans can hear frequencies ranging from 20 hertz (Hz, cycle per sound) to 20,000 Hz; however, they do not hear all frequencies equally well. As a result, a frequency weighting, known as A-weighting, is commonly applied to the sound pressure level, which approximates the frequency response of the human ear by replacing most emphasis on the frequency range of 1,000-6,000 Hz. Because this A-weighting scale closely describes the response of the human ear to sound, it is most commonly used in noise measurements. Table III-29 provides examples of common sounds and noise levels expressed on the A-weighting decibel scale.

Most individuals in urbanized areas are exposed to fairly high noise levels from many sources as they go about their daily activities. The degree of disturbance or annoyance of unwanted sound depends upon several key factors: the amount and nature of the intruding noise; the relationship between background noise and the intruding noise; and the type of activity occurring where the noise is heard. In considering the first of these factors (the amount and nature of the intruding noise), it is important to note that individuals have different sensitivities to noise. Loud noises bother some individuals more than others and some patterns of noise also enter into an individual's judgment of whether or not a noise is offensive. For example, noises occurring during sleeping hours are usually considered to be more of a nuisance than the same noises during the daytime hours.

TABLE III-29
COMMON SOUNDS EXPRESSED IN DECIBELS

A-Weighted Sound Level in Decibels (dBA)		
A-Weighted	**Overall Level**	**Noise Environment**
120	Uncomfortably loud (32 times as loud as 70 dBA)	Military jet aircraft takeoff at 50 feet
100	Very loud (8 times as loud as 70 dBA)	Jet flyover at 1,000 feet Locomotive pass-by at 100 feet
80	Loud (2 times as loud as 70 dBA)	Propeller aircraft flyover at 1,000 feet Diesel truck at 40 mph at 50 feet
70	Moderately loud	Freeway at 50 feet from pavement edge at 10 AM Vacuum cleaner (indoor)
60	Relatively quiet (½ as loud as 70 dBA)	Air conditioner unit at 100 feet Dishwasher at 10 feet (indoor)
50	Quiet (1/4 as loud as 70 dBA)	Large transformers Small private office (indoor)
40	Very quiet (1/8 as loud as 70 dBA)	Bird calls Lowest limit of urban ambient sound
10	Extremely quiet (1/64 as loud as 70 dBA)	Just audible
0	--	Threshold of hearing

Source: Federal Agency Review of Select Airport Noise Analysis Issues, 1992.
Modified by The Louis Berger Group, Inc.

With regard to the second factor (the relationship between background noise and the intruding noise), individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). For instance, the blowing of a car horn at night when background noise levels are typically about 45 dBA, would generally be more objectionable than the blowing of a car horn in the afternoon when background noises are likely to be 60 dBA or higher.

The third factor (the type of activity occurring where the noise is heard) is related to the interference of noises with activities of individuals. In a 60 dBA environment, normal work activities requiring high levels of concentration may be interrupted by loud noises, while activities requiring manual effort may not be interrupted to the same degree.

Since sound is described in a logarithmic scale, (i.e., dBs), sound levels cannot be added by ordinary arithmetic means. In fact, a doubling of the noise source produces only a three dB increase in the sound pressure (noise) level. Studies have shown that this increase is barely perceptible to the human ear, whereas a change of five dB is readily perceptible. As a general rule, an increase or decrease of 10 dBs in noise level is perceived by an observer to be a doubling or halving of the sound, respectively.

The sound level at a particular instant is not likely to be a good measure of noise levels that vary with time over a wide range, e.g., noise from vehicular movement. To better accommodate and to assess the time varying noise levels typically associated with traffic patterns, a time-averaged, single-number descriptor known as the "Level equivalent" (L_{eq}) is employed. The L_{eq} is expressed in dBA and represents the average energy content of sounds over a specified time period. It includes both steady background sounds and transient, short-term sounds. It represents the level of steady sound which, when averaged over the same sampling period, is equivalent in energy to the time-varying (fluctuating) sound level over the same period of time.

Noise may be more objectionable at certain times. This has lead to the development of a measure known as the Day-Night Average Sound Level (L_{dn} or L_{10}). L_{dn} or L_{10} is a 24-hour average sound level that includes a penalty (10dB) to sound levels during the night (10:00 PM to (7:00 AM). This measurement is often used to determine community noise levels and is endorsed by such agencies as the USEPA, the U.S. Department of Transportation, the U.S. Department of Housing and Urban Development, and the U.S. Department of Defense.

Lands in commercial use, residential development, and the existing USP constitute the predominant land uses found in and around the alternative project sites. There are no major noise sources located nearby. Current land uses within the project sites do not produce noise because of the absence of development at the sites. The large land area comprising the sites also limits any noise originating from the sites to be experienced within adjoining properties.

By virtue of this setting, noise sources affecting the alternative sites are largely confined to motor vehicle operations along adjacent and nearby roadways, sporadic bird and wildlife calls, and aircraft overflights. The occasional noise from motor vehicle traffic on nearby roadways is not substantial and is barely audible within interior portions of the large site. No sensitive receptors of noise were found within the area immediately bordering on or surrounding the proposed site.

2. Potential Impacts and Mitigation

Potential noise impacts resulting from the proposed project may occur from construction activities, routine operations, and motor vehicle traffic associated with facility operation. These potential impacts and recommendations for mitigation, if necessary, are discussed below.

a. Potential Impacts - Construction Activities

Noise impacts would occur in the immediate vicinity of the project site as a result of construction activities. The magnitude of the potential impact depends upon the specific types of equipment to be used, the construction methods employed, the locations within the project site where construction is active, and the scheduling and duration of the construction work. Many of these details are not specified in contract documents, but are at the discretion of the construction contractor. This allows the contractor flexibility in using equipment and personnel in order to accomplish the work, maintain the

schedule and control construction costs. However, general conclusions can be drawn based on the nature of construction work anticipated, the types of equipment involved in construction and their associated range of noise levels.

The various noise-generating activities that would take place during construction include site preparation and grading, excavations for foundations, construction of structures, access roadway and parking area paving, utility installations, etc. Construction-related noise will occur only for the duration of the construction period and is usually limited to daylight hours. It is generally intermittent and depends on the type of operation, location and function of the equipment, and the equipment usage cycle.

Construction noise also attenuates quickly as the distance from the source increases. As shown in Table III-30, construction equipment noise levels at approximately 40 feet from the source diminish significantly at approximately 90 feet from the source. For example, noise levels resulting from use of an excavator during clearing and grubbing yield a Leq of approximately 80 dBA at 50 feet and 74 dBA at approximately 100 feet. Furthermore, these noise levels would continue to decrease by approximately three or four dBA with every doubling of distance and would drop to approximately 62 to 65 dBA at approximately 800 feet.

Noise resulting from construction of the proposed project is not anticipated to have a significant adverse effect on land uses surrounding either alternative site. The relatively isolated locations of the sites, the great distances to homes, businesses, schools, churches and other sensitive land uses and noise receptors in the vicinity of the sites, and background noise from neighboring roadways, wildlife calls, and aircraft overflights should allow construction to proceed while avoiding significant adverse impacts to adjoining properties. Following completion of construction, noise levels would return to near pre-construction levels.

b. Recommended Mitigation - Construction Activities

Potential noise impacts during the construction phase would be mitigated by confining construction to normal working hours and employing noise-controlled construction equipment to the extent feasible. Measures to mitigate potential construction noise impacts may also include the following provisions:

- **Source Control**
  - Construction equipment would be equipped with appropriate noise attenuation devices, such as mufflers and engine housings.
  - Exhaust systems would be maintained in good working order. Properly designed engine enclosures and intake silencers would be employed.
  - Regular equipment maintenance would be undertaken.
- **Site Control**
  - Stationary equipment would be placed as far away from sensitive receptors as possible (e.g., aggregate crushers, operators).
  - Disposal sites and haul routes would be selected to minimize objectionable noise impacts.

TABLE III-30
TYPICAL NOISE LEVELS GENERATED
BY CONSTRUCTION EQUIPMENT

No. of Items	Equipment Type	Maximum Equipment Noise Level at 15 meters (dBA)	Hourly Equivalent Noise Levels at 15 meters (dBA[1])	Hourly Equivalent Noise Levels at 30 meters (dBA[1])
Clear and Grub				
1	Excavator	83	80	74
1	Backhoe	75	72	66
4	Heavy Duty Dump Trucks	73	70	64
		Overall L_{eq}(h)	82	76
Demolition				
1	Front Loader	76	73	67
1	Hoe Ram	89	86	80
2	Heavy Duty Dump Trucks	73	70	64
		Overall L_{eq}(h)	87	81
Retaining Walls				
1	Backhoe	75	72	66
1	Concrete Pump	74	71	65
1	Compressor	68	65	59
1	Ready Mix Trucks	72	69	63
2	Medium Duty Dump Trucks	77	74	68
1	Flatbed Truck	70	67	61
		Overall L_{eq}(h)	82	76
Paving				
1	Grader	75	72	66
1	Water Truck	77	74	68
1	Vibratory Roller	78	75	69
1	Compactor	76	73	67
1	Concrete Pump	74	71	65
1	Ready Mix Trucks	72	69	63
1	Asphalt Paver	79	76	70
1	Asphalt Roller	78	75	69
1	Sweeper	79	76	70
2	Medium Duty Dump Trucks	73	70	64
1	Flatbed Truck	70	67	61
		Overall L_{eq}(h)	84	78

TABLE III-30 (CONTINUED)
TYPICAL NOISE LEVELS GENERATED
BY CONSTRUCTION EQUIPMENT

No. of Items	Equipment Type	Maximum Equipment Noise Level at 15 meters (dBA)	Hourly Equivalent Noise Levels at 15 meters (dBA[1])	Hourly Equivalent Noise Levels at 30 meters (dBA[1])
Earthwork				
1	Excavator	83	80	74
1	Backhoe	75	72	66
1	Front Loader	76	73	67
1	Dozer	85	82	76
1	Trencher	80	77	71
2	Heavy Duty Dump Trucks	73	70	64
		Overall L_{eq}(h)	86	80
Structures				
1	Excavator	83	80	74
1	Backhoe	75	72	66
1	Soil Compactor	80	77	71
1	Crane	78	75	69
1	Concrete Pump	74	71	65
1	Compressor	68	65	59
1	Front Loader	76	73	67
1	Flatbed Truck	75	72	66
4	Medium Duty Dump Trucks	73	70	64
3	Ready Mix Trucks	81	78	72
		Overall L_{eq}(h)	87	81
Miscellaneous				
1	Front Loader	76	73	67
1	Dozer	79	76	70
2	Medium Duty Dump Trucks	73	70	64
		Overall L_{eq}(h)	79	73

Notes: Calculated construction noise levels assume that all equipment operates for six hours out of an eight-hour day. Calculations also assume that all equipment are operated at full load 70% of the time.
1 - Predicted noise levels are from the center of the construction activity.
Source: The Louis Berger Group, Inc., 2010.

- **Time and Activity Constraints**

  – Operations would be scheduled to coincide with periods when people would least likely be adversely affected. Work hours and workdays would be largely confined to normal business hours.

- **Community Awareness**

  – Public notification of construction operations would incorporate noise considerations and methods to handle complaints would be specified.

c. Potential Impacts – FCI and FPC Operation

Noise occurring during correctional facility operation is not expected to result in a significant adverse impact. The absence of noise-producing equipment and activities should result in post-construction noise conditions similar to pre-construction conditions. Any increase in noise levels resulting from the operation of the proposed facility is expected to be slight and virtually imperceptible. Furthermore, the distances between the proposed facility and homes, commercial uses and other land uses adjoining the USP Leavenworth property should go far to attenuate any potential noise impacts.

d. Recommended Mitigation - FCI Operation

Given the lack of significant adverse noise impacts during FCI and FPC operation, the buffer zone to surround the proposed facility, the distance to sensitive receptors, and the background noise levels generated by adjoining roadways, no mitigation measures to control noise resulting from operation of the proposed project would be warranted.

e. No Action Alternative

Under the No Action Alternative, the proposed FCI/FPC would not be developed at USP Leavenworth. Hence, impacts to noise conditions would not occur and mitigation measures would not be required.

U. SUMMARY OF ANY SIGNIFICANT IMPACTS AND REQUIRED MITIGATION

Construction and operation of the proposed FCI and FPC would result in less than significant impacts to topography, geology, soils, water resources, land use, transportation movements, meteorological conditions, noise levels, and air quality. Development of the proposed FCI and FPC would result in beneficial impacts by alleviating crowded conditions in federal correctional facilities by providing a much-needed new facility to meet existing and future inmate housing needs, and in concert with other actions by the BOP, would contribute to implementation of national criminal justice goals and objectives. Beneficial impacts on the regional economy of eastern Kansas and western Missouri would also be realized by virtue of the facility's project development budget of approximately $290 million, 350-person workforce and approximately $35 million annual operating budget. Construction-related impacts and other potentially adverse impacts associated with facility operation would be controlled, mitigated, or avoided to the extent possible.

V. RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Regulations for the preparation of EISs require such documents to address the relationship between short-term use of the environment and the maintenance of long-term productivity. In this instance, following ground-breaking, the project site would be used as a construction site. Construction would involve ground clearing and excavating, the erection of building and other structures, trenching for utility installations, the paving of internal roadways and parking lots, installation of perimeter security fencing and light fixtures, among other similar activities. Increased noise levels, dust, soil erosion and sedimentation, and similar construction impacts can be anticipated. These disruptions, however, would be temporary and should be easily controlled to minimize their effects and to avoid significant adverse impacts.

Potential short-term impacts and inconveniences must be contrasted with the increased economic output and productivity that would result by virtue of the construction jobs created, expanded payrolls, induced personal income, and the purchases of materials, supplies, and services that would occur during the construction phase. The economic viability of Leavenworth, surrounding communities in Leavenworth County, and the eastern Kansas and western Missouri regions would benefit on an long-term basis by virtue of the approximately 350 new, permanent jobs offered by the BOP and the FCI and FPC's estimated $35 million annual operating budget. For the most part, these productivity gains would be long-term, given the lifespan of the planned facilities.

W. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Regulations for the preparation of EISs also require such documents to address irreversible and irretrievable commitments of resources associated with the proposed action. Construction of the FCI and FPC would result in both direct and indirect commitments of resources. In some cases, the resources committed would be recovered in a relatively short period of time. In other cases, resources would be irreversibly or irretrievably committed by virtue of being consumed or by the apparent limitlessness of the period of their commitment to a specific use. Irreversibly and irretrievable commitments of resources can sometimes be compensated for by the provision of similar resources with substantially the same use or value.

In this instance, the lands comprising the project site would be required for the construction of the facility. The lands comprising the developed portion of the selected site could be considered irretrievably committed. The proposed action would also require the commitment of various construction materials including substantial volumes of cement, aggregate, steel, asphalt, lumber, and other building materials. Resources consumed as a result of FCI and FPC development would be offset by the creation of the correctional facility and the resulting societal benefits. Much of the material dedicated to construction may be recycled at some future date.

The proposed project would require the use of an amount of fossil fuel, electrical power, and other energy resources during construction and operation of the proposed facility. These should also be considered irretrievably committed to the project. Direct employment would also be committed to the

construction of the project, and approximately 350 person-years of staff time would be consumed annually upon operation of the FCI.

X. CONSIDERATION OF SECONDARY AND CUMULATIVE IMPACTS

Secondary impacts are those that are *"caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable"* (40 CFR 1508.8). Secondary impacts are typically associated with developments that may indirectly result from construction or improvement of a facility. Secondary impacts differ from those directly associated with the construction and operation of a facility itself and are often caused by what is commonly referred to as induced development. Induced development may include a variety of secondary effects such as changes in land use, water quality, economic vitality and population density. Therefore, the potential for secondary impacts to actually occur is determined in large part by the individual local planning objectives and the location of a proposed project.

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

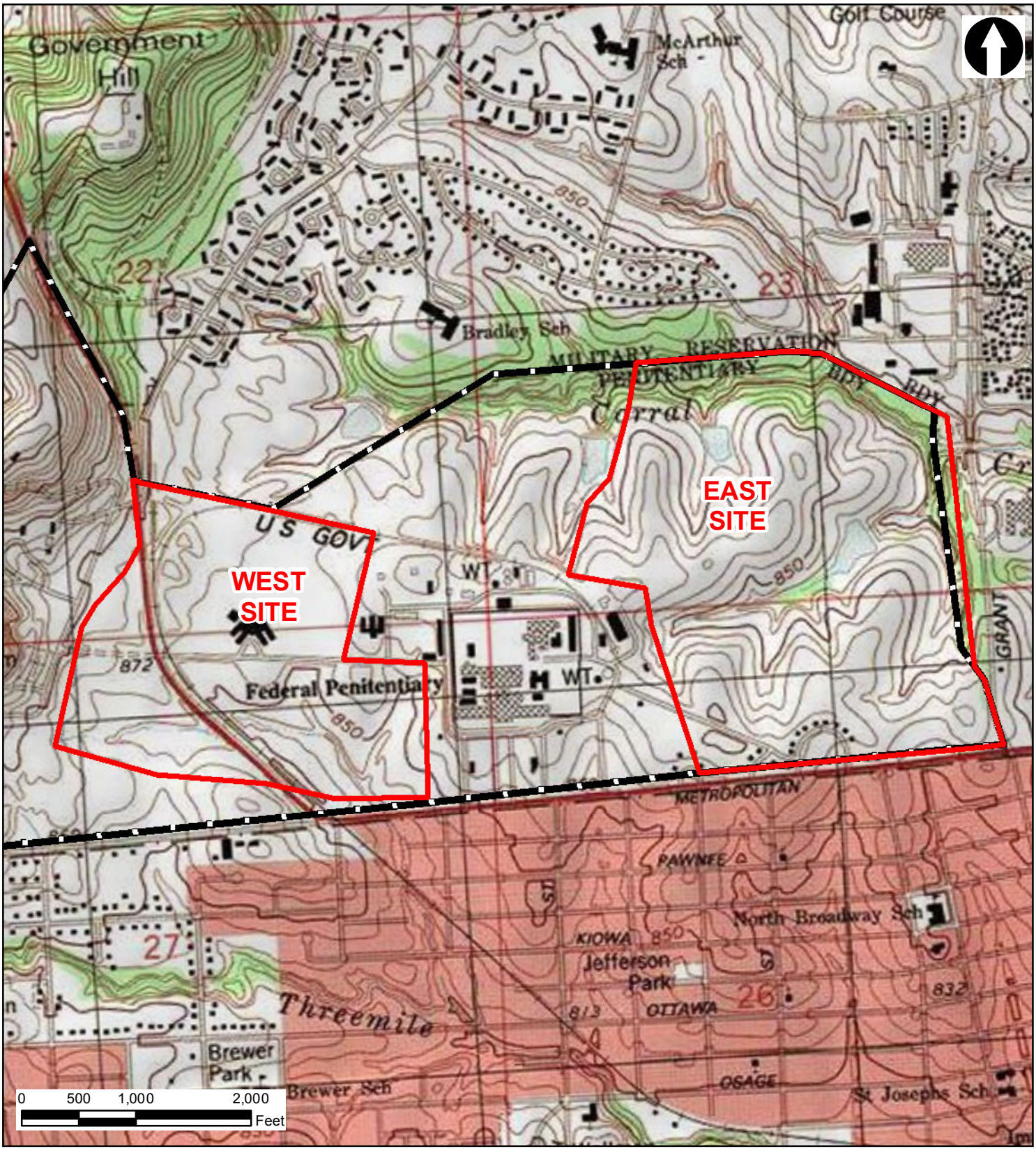
1. Secondary Impacts

Construction and operation of the proposed FCI and FPC would result in less-than-significant impacts to the immediate project site, USP property and host region. Less-than-significant impacts would be anticipated on utility services, traffic and transportation movements to and from the facility, noise levels, and air quality in the vicinity of the project site. The compact nature of the proposed development coupled with placement within the USP Leavenworth property would not significantly affect local land use patterns and would have little, if any, secondary impacts on land use. Extending water supply, wastewater collection, electric power and natural gas services within the USP Leavenworth property to serve the proposed project is not expected to induce or foster additional development in the area. With the decline in the City of Leavenworth's population since 1990 (-8.5 percent), increased development activity is an intended consequence of the proposed project. Any such potential impact would be considered by Leavenworth and Leavenworth County officials in the planning and development of community facilities and/or utility system improvements. In addition, such growth would be consistent with the goals of local planning and development officials to secure new employment opportunities and stimulate new economic activities in the area. Local planning and economic development officials are confident in their ability to manage the development process so as to maintain the quality of the natural environment.

The proposed action to construct and operate the proposed FCI and FPC, in concert with other actions, would also contribute to the efficient operation of the national criminal justice system. Beneficial impacts, both direct and secondary, to the region's economy would also be realized by virtue of the substantial construction and operating budgets associated with the FCI. Secondary and construction-related impacts and other potentially adverse impacts would be controlled, mitigated and avoided to the extent possible. There are no present or foreseeable actions occurring in Leavenworth or Leavenworth County that are directly attributable to the proposed action.

2. Cumulative Impacts

The intent of the cumulative effects analysis is to determine the magnitude and significance of past, present and reasonably foreseeable future actions, both beneficial and adverse, in terms of context and intensity. The proposed USP project is not expected to result in cumulative effects, in terms of intensity or context, to any social, cultural or natural features. The incremental rate of growth in the Leavenworth area and surrounding Leavenworth County region, the lack of other reasonably foreseeable actions, the current status of resources listed, and the local regulatory framework, all function to offset potentially negative cumulative impacts.



Source: ESRI, USGS Map Service.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Areas

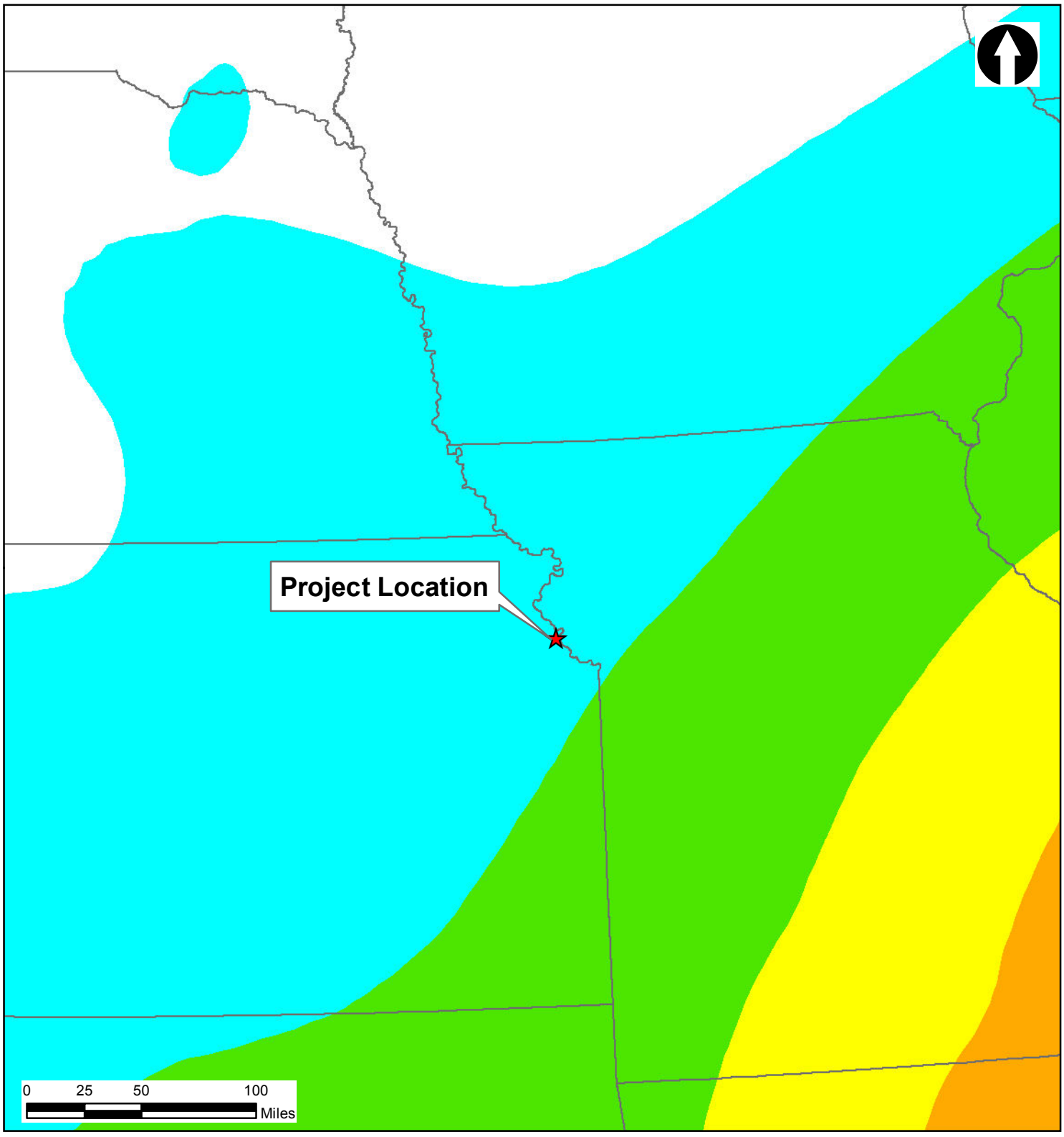
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Topographic Features

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-1



Source: USGS, ESRI 2000.

Legend

Peak Acceleration (%g) with a
Probability of Exceedence in 50 years

- 0 - 2%
- 2 - 4%
- 4 - 8%
- 8 - 16%
- 16 - 24%

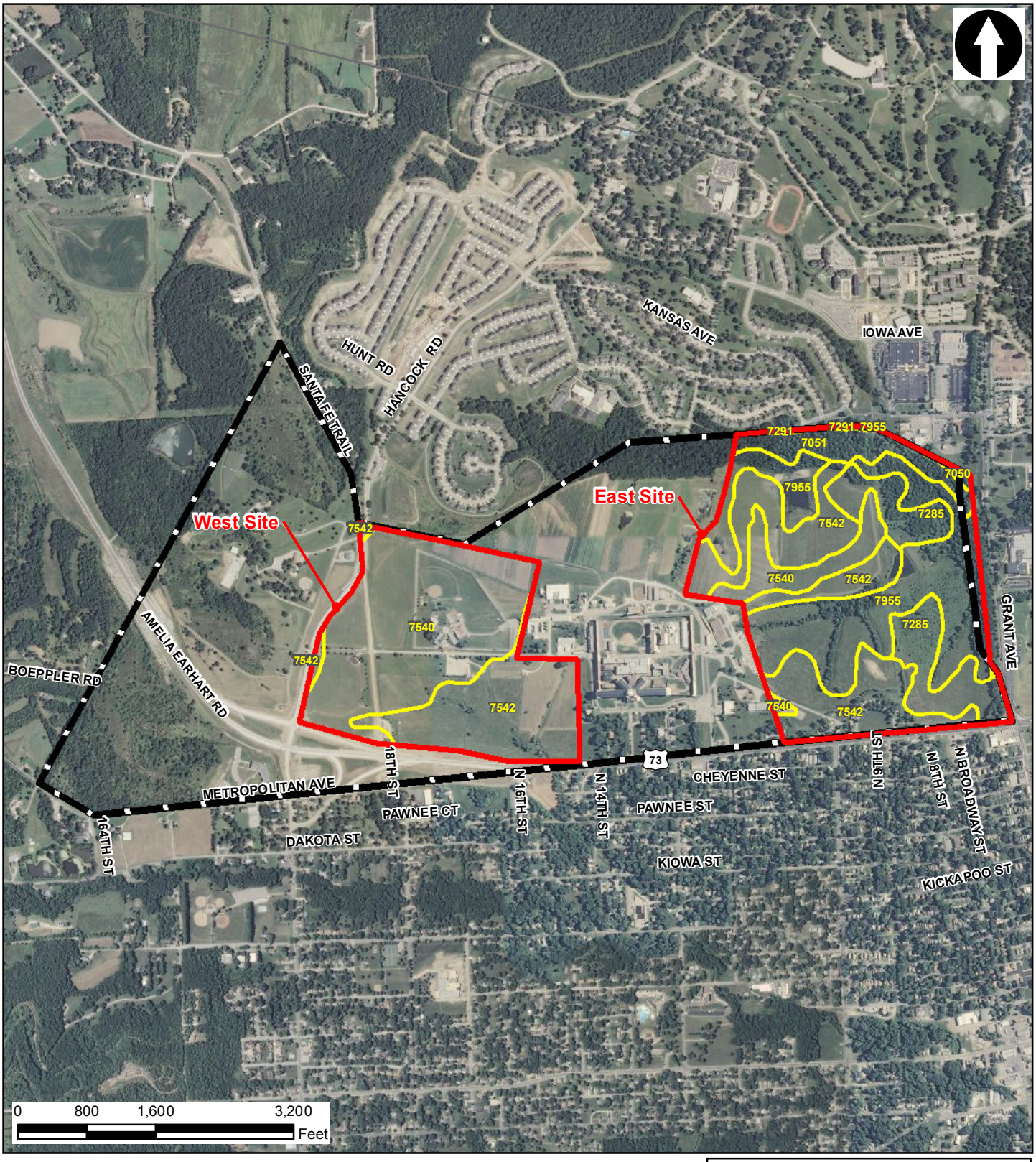
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Seismic Activity Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-2



Source: National Agriculture Imagery Program (NAIP); 2010, USDA NRCS Leavenworth County, KS Soil Survey 2010.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Areas
- Soils
  - 7050 - Kennebec silt loam, occasionally flooded
  - 7051 - Kennebec silt loam, frequently flooded
  - 7285 - Ladoga silt loam, 3 to 8 percent slopes
  - 7291 - Marshall silt loam, 5 to 9 percent slopes
  - 7540 - Sharpsburg silty clay loam, 1 to 4 percent slopes
  - 7542 - Sharpsburg silty clay loam, 4 to 8 percent slopes, eroded
  - 7555 - Sarcoxie silty clay loam, 1 to 4 percent slopes

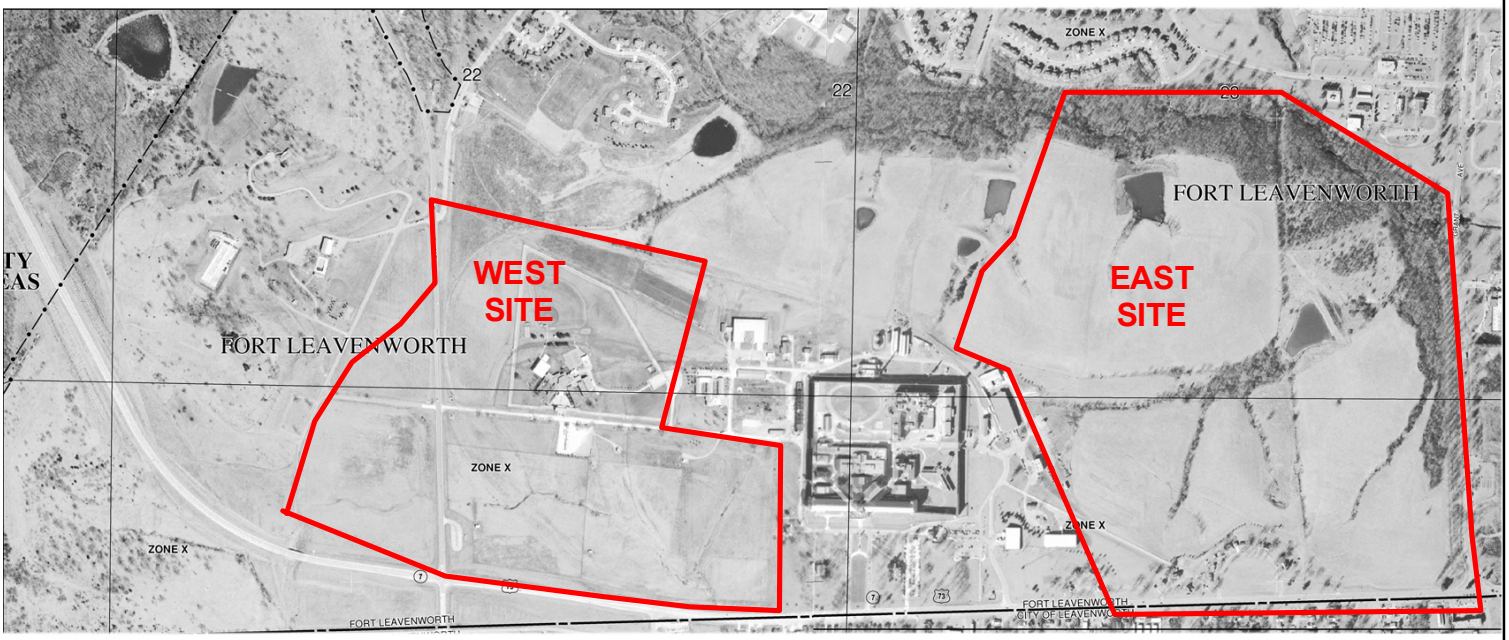
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Soils Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-3



Source: FEMA FIRM maps, 2009, Leavenworth County, KS.

N.T.S.

Legend

ZONE X - Flood insurance rate zones used for areas outside the 0.2-percent (500 year flood)-annual-chance floodplain. No BFEs or depths are shown in this zone, and insurance purchase is not required

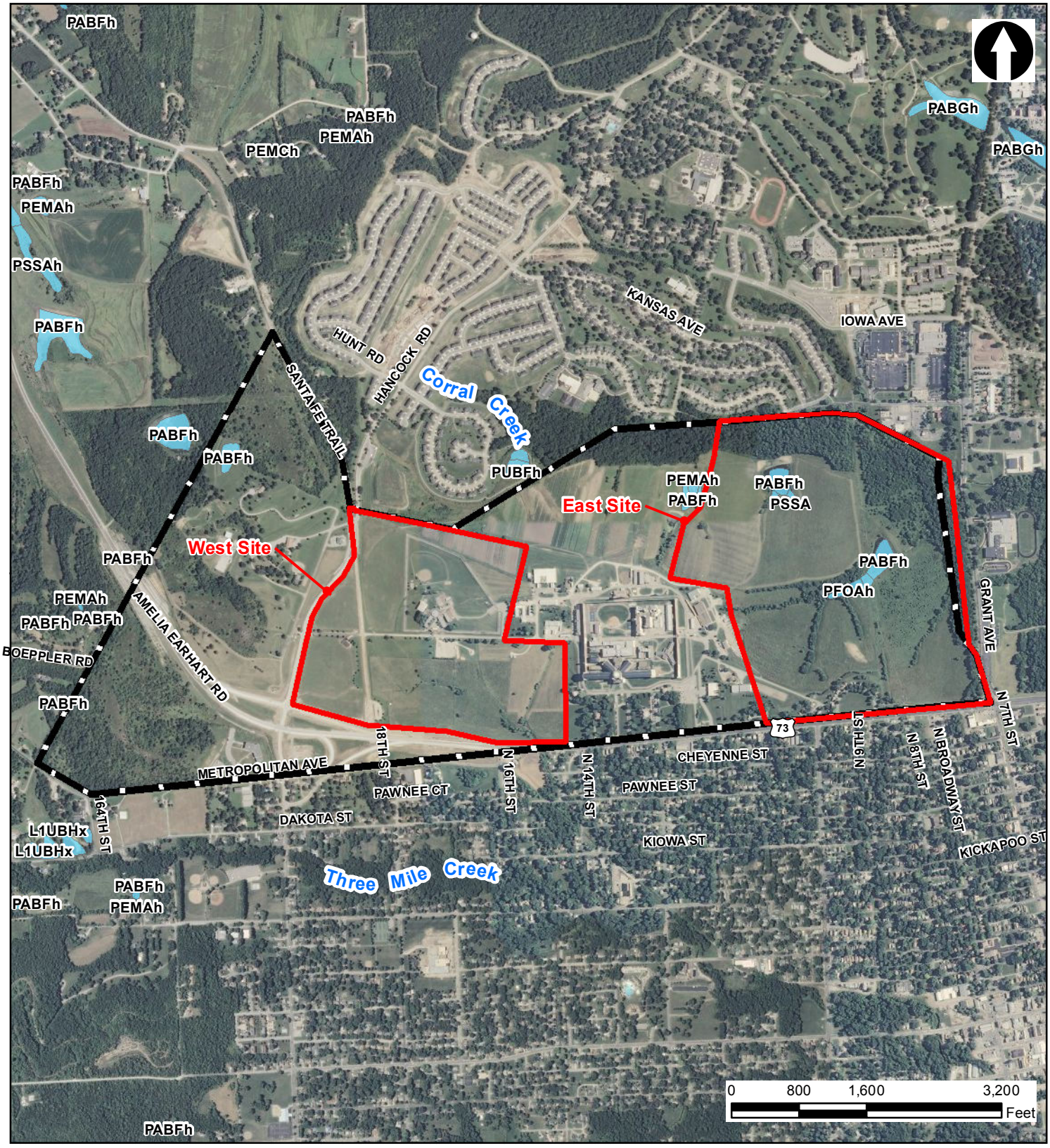
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

FEMA Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-4



Source: National Agriculture Imagery Program (NAIP) 2010, USFW, National Wetlands Inventory.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Areas
- NWI Wetland
  - PABFh - Palustrine, Aquatic Bed, Semipermanently Flooded, Diked/Impounded
  - PEMAh - Palustrine, Emergent, Temporarily Flooded, Diked/Impounded
  - PFOAh - Palustrine, Forested, Temporarily Flooded, Diked/Impounded
  - PSSA - Palustrine, Scrub-Shrub, Temporarily Flooded
  - PUBFh - Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Diked/Impounded

Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

NWI Wetlands

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Exhibit III-5

Source: National Agriculture Imagery Program (NAIP) 2010

- Ephemeral Tributary
- Intermittent Tributary
- Perennial Tributary
- Open Water
- Palustrine Emergent Wetland
- Palustrine Scrub-shrub Wetland
- Study Area
- BOP Leavenworth Property Boundary (approximate)

0 185 370 740 Feet

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Proposed FCI and FPC
USP Leavenworth

Aquatic Resources Map - East Site

Exhibit III-6a

Source: National Agriculture Imagery Program (NAIP) 2010

0 150 300 600
Feet

- Ephemeral Tributary
- Intermittent Tributary
- Perennial Tributary
- Open Water
- Palustrine Emergent Wetland
- Palustrine Scrub-shrub Wetland
- Study Area
- BOP Leavenworth Property Boundary (approximate)

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Proposed FCI and FPC
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Aquatic Resources Map - West Site

Exhibit III-6b

Source: National Agriculture Imagery Program (NAIP); 2010, Kansas DASC 2010.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Area
- (1) Architectural Resource

Note: The locations of archaeological sites have only been provided to the Kansas SHPO at its request and in the interest of protecting the integrity and content of such sites.

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Proposed FCI and FPC
USP Leavenworth
Archaeological/Architectural APE
East Site

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Exhibit III-7a

Source: National Agriculture Imagery Program (NAIP); 2010, Kansas DASC 2010.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Area
- (1) Architectural Resource

Note: The locations of archaeological sites have only been provided to the Kansas SHPO at its request and in the interest of protecting the integrity and content of such sites.

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Proposed FCI and FPC
USP Leavenworth
Archaeological/Architectural APE
West Site

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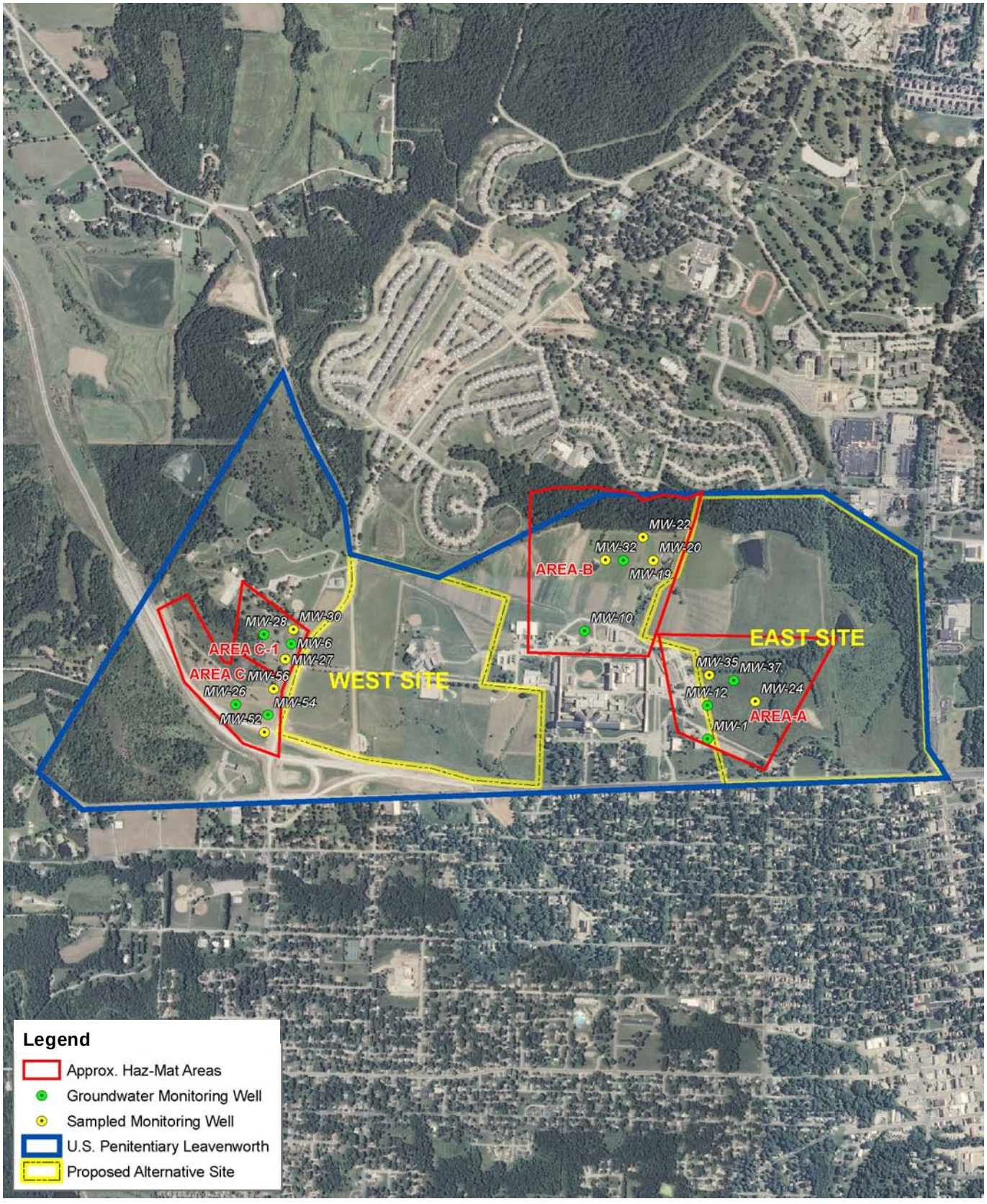
Exhibit III-7b



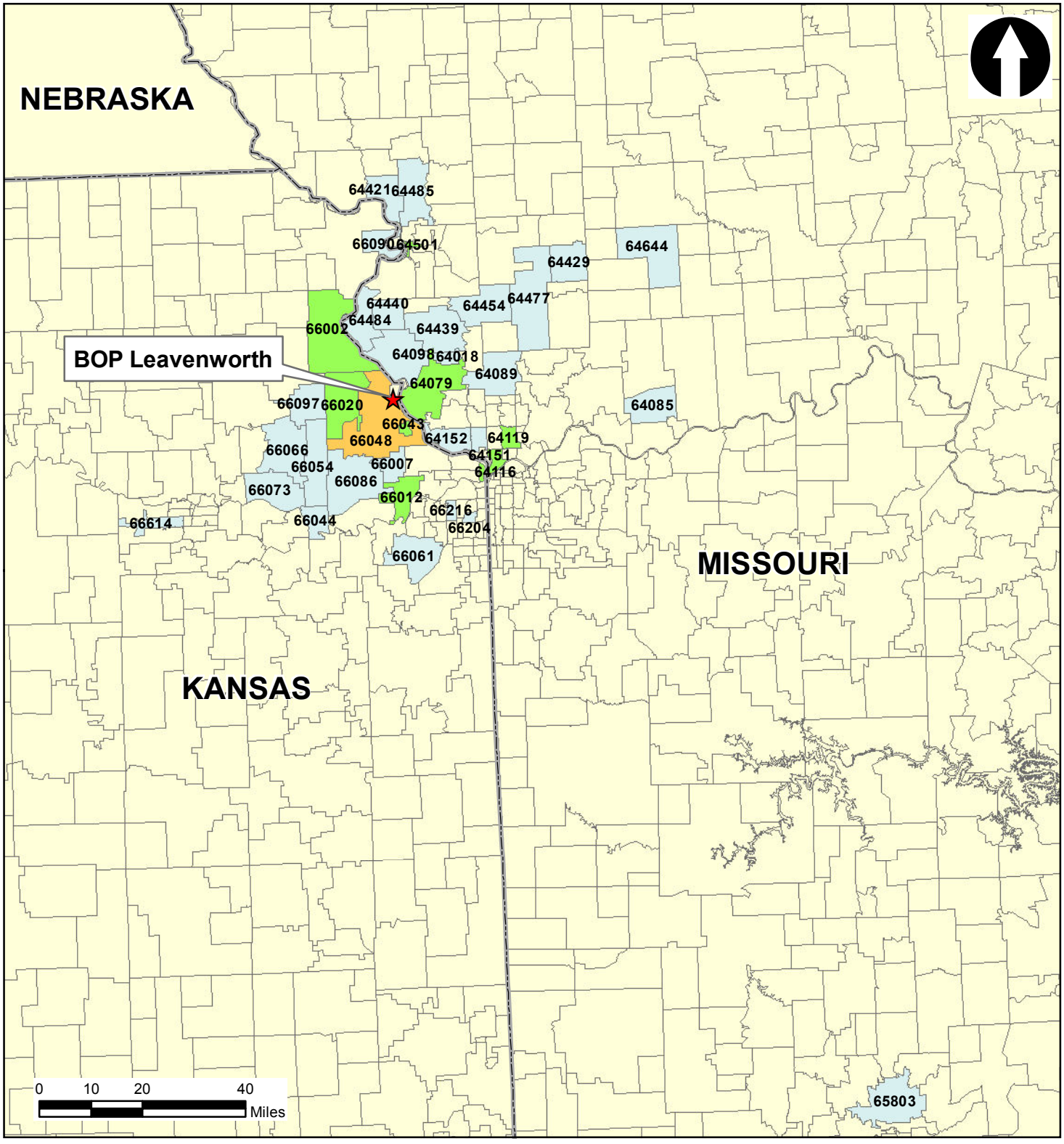
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Hazardous Waste Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-8



Source: Federal Bureau of Prisons, 2011.

Legend

BOP Employees by Zip Code

- 1 - 10
- 11 - 35
- 36 +

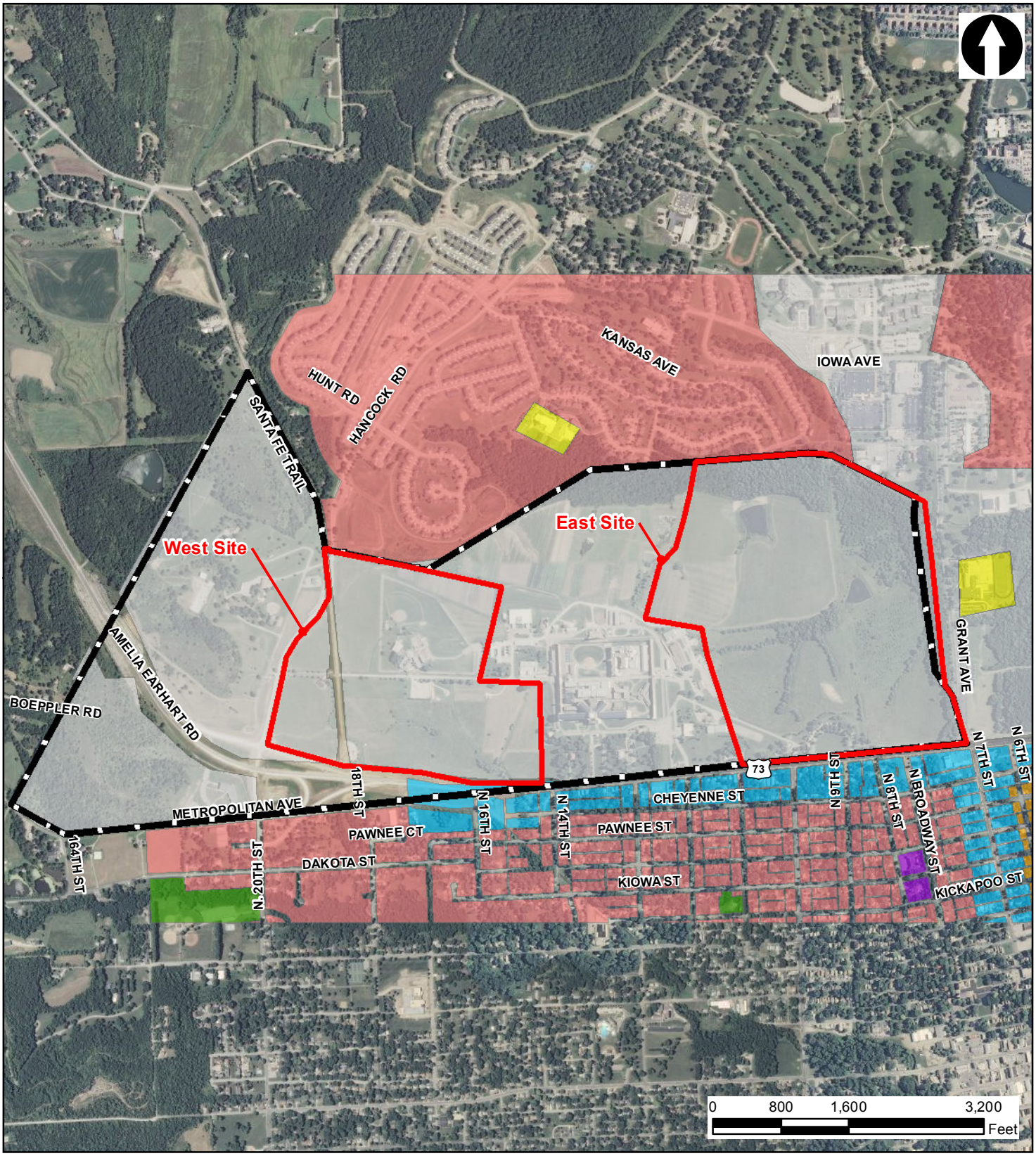
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

BOP Employees
Current Place of Residence

The Louis Berger Group, Inc.

Exhibit III-9



Source: National Agriculture Imagery Program (NAIP) 2010, Land Use Comp Plan, City of Leavenworth, 2010.

Legend

- BOP Leavenworth Property Boundary (Approximate)
- Study Areas

Land Use

- Institution
- School
- Commercial
- Medium Density Residential
- Multi-Family Residential
- Parks

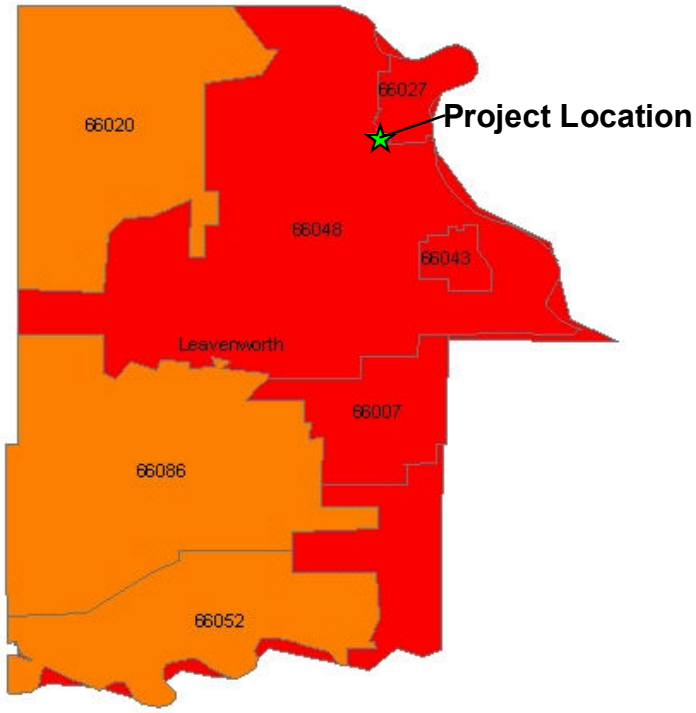
Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Land Use Map

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-10



Average Radon Level = 4.3pCi/L
Maximum Reported Radon Level = 62
Total Number of Measurements = 598
Total Measurements 4 pCi/L or greater = 204

Legend

RADON

- 0.0 - 1.9 pCi/L
- 2.0 - 3.9 pCi/L
- 4.0 pCi/L or more

Source - KDHE and Kansas State University, 2010.

Federal Bureau of Prisons

Proposed FCI and FPC
USP Leavenworth

Kansas Radon Zones

The Louis Berger Group, Inc.
412 Mount Kemble Ave
Morristown, NJ 07962

Exhibit III-11

IV. REFERENCES

IV. REFERENCES

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