



# Construction of New Pedestrian Bridge and Parking Facilities to Replace Failing Roadway Bridge

## Environmental Assessment

December 2011





# **Construction of New Pedestrian Bridge and Parking Facilities to Replace Failing Roadway Bridge Fort Larned National Historic Site Environmental Assessment**

## **Summary**

The National Park Service (NPS), in cooperation with the Federal Highway Administration (FHWA), proposes to demolish a failing roadway bridge, construct a new pedestrian bridge and walkway, construct a new parking area, and implement other improvements at Fort Larned National Historic Site, Kansas (park). The proposed project would address maintenance and safety issues with the existing roadway bridge and improve the quality of the visitor experience by creating a more historically accurate approach and entrance to the fort.

This Environmental Assessment (EA) evaluates three alternatives: a no action alternative and two action alternatives. Under Alternative 1, the no action alternative, there would be no change from existing conditions and the deteriorated roadway bridge would not be demolished or other improvements made. The action alternatives, Alternatives 2 and 3, include demolishing the failing roadway bridge and constructing a new pedestrian bridge while protecting park scenic, natural, and cultural resources. Under Alternative 2, the existing two-lane entrance road would be repaved and extended about 0.4 mile to the location of the new parking area and pedestrian bridge. A new paved, accessible parking area would be constructed to the west of the fort and the Pawnee River. A new paved walkway also would be constructed, linking the parking area to the pedestrian bridge and ultimately to the historic core of the fort. The new pedestrian bridge would be constructed with a design that would be compatible with the historic setting of the park and would be in a more historically appropriate location. Alternative 2 also includes removing existing parking areas and selected segments of service roads and paving the loop road in the picnic area. Alternative 3 includes all components of Alternative 2, but instead of extending the existing access road, a new access road would be constructed from 180th Avenue to the new parking area. Alternative 3 also includes construction of a service road from the existing picnic area to the new parking area.

This EA has been prepared in compliance with the National Environmental Policy Act to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet the objectives of the proposal, 2) evaluates potential issues and potential impacts to the park's resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics evaluated in detail in this EA are floodplains, visitor use and experience, archeological resources, cultural landscape, and park operations. All other resource topics were dismissed because the project would result in less than minor impacts. No major impacts were identified because of this project. The park has prepared a separate assessment of effects document in compliance with section 106 of the National Historic Preservation Act in consultation with the State Historic Preservation Office (SHPO). The Park Service has determined there will be no adverse effect on cultural resources based on a report prepared by the NPS Midwest Archeological Center (DeVore and LeBeau 2011). The Park Service sent a letter requesting comment on the proposed project to seven American Indian tribes and received no comments. The U.S. Fish and Wildlife Service (USFWS)

indicated the proposed project would have no impact on federally listed threatened or endangered species. No comments were received from the public during the May 25, 2011 to July 1, 2011 scoping period.

### **Public Comment**

If you wish to comment on this EA, you may post comments online using the NPS Planning, Environment and Public Comment (PEPC) website at <http://parkplanning.nps.gov>.

Comments can be sent by mail to: Superintendent, Fort Larned National Historic Site, 1767 Kansas State Highway 156, Larned, KS 67550-9321.

This EA will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. Although you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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## Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
BMP	Best Management Practice
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
DO	Director's Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
GMP	General Management Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOx	Nitrogen Oxides
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
PEPC	Planning, Environment and Public Comment
SHPO	State Historic Preservation Office
SOF	Statement of Findings
SWPPP	Stormwater Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound

# **ENVIRONMENTAL ASSESSMENT CONSTRUCTION OF NEW PEDESTRIAN BRIDGE AND PARKING FACILITIES TO REPLACE FAILING ROADWAY BRIDGE FORT LARNED NATIONAL HISTORIC SITE**

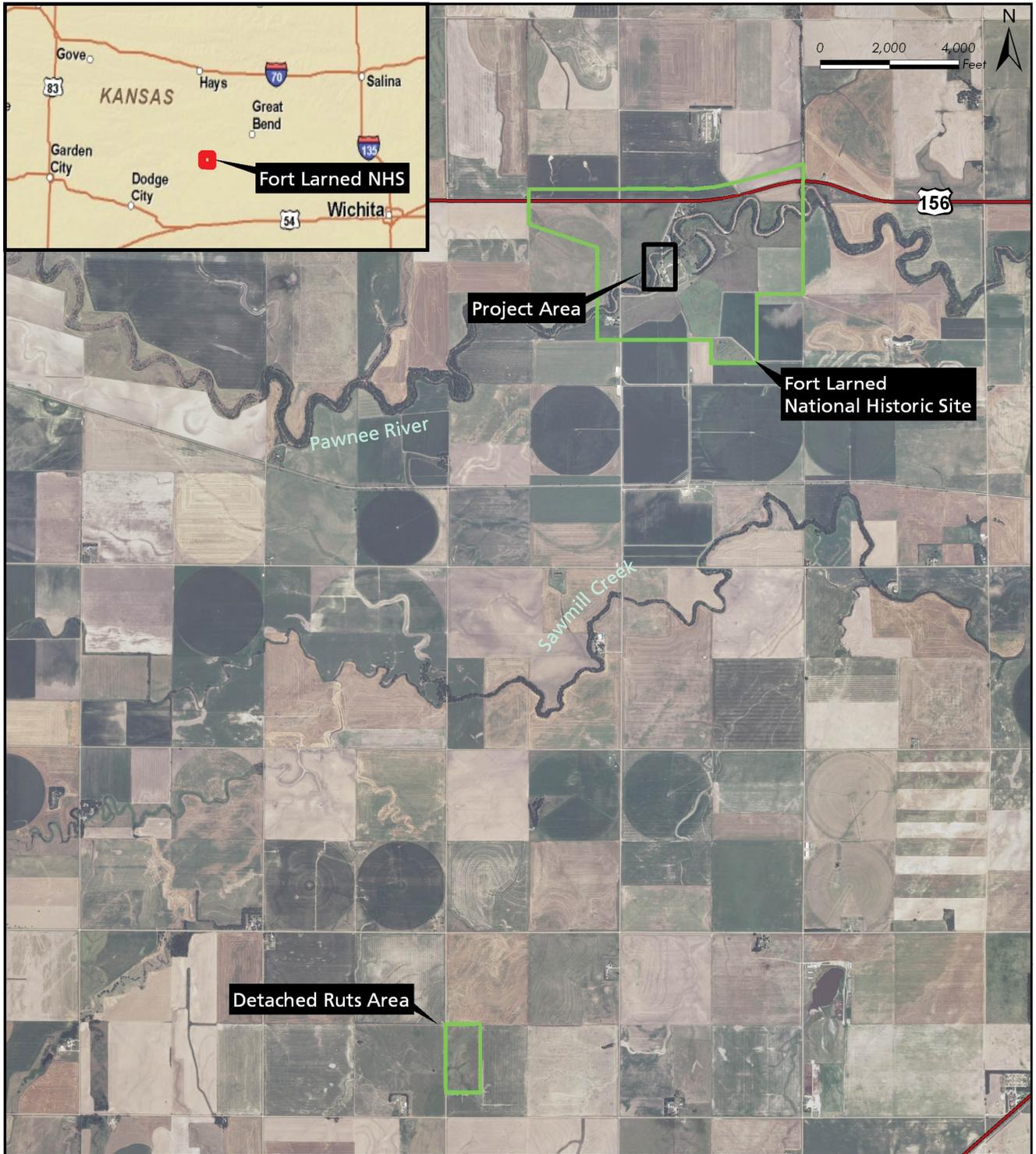
## **INTRODUCTION**

Fort Larned National Historic Site (park or fort) is located near the town of Larned, Kansas (Figure 1). The park was established by an act of Congress on August 31, 1964 and is managed by the National Park Service (NPS). The 718-acre park was set aside as part of the national park system to preserve, research, and interpret the restored and reconstructed buildings and other structures that make up Fort Larned in order to advance our knowledge and understanding of the fort and its role in American history.

This Environmental Assessment (EA) was prepared to evaluate the potential environmental impacts associated with two action alternatives and a no action alternative. Under Alternative 1, the no action alternative, there would be no change from existing conditions. Both action alternatives include demolishing an existing roadway bridge, paving the existing loop road in the picnic area, removing existing parking areas and selected segments of service roads, constructing a new pedestrian bridge with walkway, and constructing a new parking area. Under Alternative 2, the existing two-lane entrance road would be repaved and extended about 0.4 mile to the location of the new parking area and pedestrian bridge. Alternative 3 includes all components of Alternative 2, but instead of extending the existing access road, a new access road would be constructed from 180th Avenue to the new parking area. Alternative 3 also includes construction of a service road from the existing picnic area to the new parking area.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and NPS Director's Order (DO) – 12: *Conservation Planning, Environmental Impact Analysis, and Decision-Making*.

**FIGURE 1. FORT LARNED LOCATION**



## **PROJECT PURPOSE AND NEED**

### **Project Purpose**

The Park Service is proposing to demolish a deteriorated roadway bridge at the park and construct a new pedestrian bridge near the historic crossing of the Pawnee River. In addition to the new bridge, the project includes removing existing parking areas and selected segments of service roads, paving the loop road in the picnic area, and constructing an access road to the location of the new bridge. A new 50-space paved parking area also would be constructed, with a connecting walkway across the new bridge to the visitor center. The new pedestrian bridge would be constructed with a design that would be compatible with the historic setting of Fort Larned. The objectives of the proposed project are to:

#### **Provide for Visitor Enjoyment and Safety**

- Provide visitors a safe, easily accessible, and historically accurate entrance to the park

#### **Improve the Efficiency of Park Operations**

- Reduce maintenance requirements and costs due to deficiencies in the condition of the bridge, entrance road, and parking area
- Provide park employees with a safe and healthy working environment to better meet park goals

#### **Protect Park Resources**

- Protect park natural and cultural resource values

### **Project Need**

The proposed project is being considered because of the need to address deficiencies in the condition of the existing bridge and safety concerns. The current bridge over the Pawnee River is in such a deteriorated condition that the Federal Highway Administration (FHWA) has recommended complete reconstruction of the bridge by demolition of the road surface, superstructure, and sections of the bridge foundation columns, followed by reconstruction of these elements (FHWA 2003). Because of these concerns, the FHWA has restricted the bridge load capacity from the designed capacity of 40 tons to 10 tons. The bridge is no longer able to meet its designed purpose and is an intrusion on the visitor experience at the fort.

## **PURPOSE AND SIGNIFICANCE OF FORT LARNED NATIONAL HISTORIC SITE**

Fort Larned was designated a National Historic Landmark (NHL) in 1960. Fort Larned National Historic Site was authorized by an act of Congress on August 31, 1964 (Public Law

88-541). The park was established to commemorate the significant role played by Fort Larned in the opening of the West. The park boundary currently encompasses 718 acres.

The purposes, significance, and mission goals of the park, as outlined in the park's Master Plan (NPS 1978) and General Management Plan Amendment, Development Concept Plan, and Interpretive Prospectus (GMP) (NPS 1994), underlie how the park is managed. The purposes tell why the park was set aside as a unit in the national park system. The significance of the park addresses why the area is unique—why it is important enough to our natural and/or cultural heritage to warrant national historic site designation, and how it differs from other parts of the country.

The purposes of Fort Larned National Historic Site are to:

- Commemorate the significant role played by Fort Larned in the opening of the West.
- Preserve, protect, interpret, and administer the resources of Fort Larned as a national historic site.
- Preserve areas of archeological and ethnological interest.
- Protect scenic, scientific, natural, and historic values.

Fort Larned National Historic Site is significant for the following reasons:

- Fort Larned played an important role in protecting the Santa Fe Trail in the 1860s and the Atchison, Topeka, and Santa Fe Railroad in the 1870s.
- Fort Larned was a focal point for conflicts and peaceful interactions with plains Indians in the 1860s.
- The park contains nine structures dating from the historic period and is listed on the National Register of Historic Places (NRHP or national register). Because of its large number of authentically restored and furnished buildings and surrounding grasslands, Fort Larned is the finest example of an Indian Wars military post on the Santa Fe Trail.
- A separate unit of the park (the 44-acre Trail Ruts Unit) preserves deep worn wagon ruts that still mark the Santa Fe Trail route.

## **RELATED PLANNING DOCUMENTS**

### **Fort Larned National Historic Site Master Plan**

The new and more historically accurate location of the pedestrian bridge was proposed in the park's Master Plan (NPS 1978) and is now proposed for implementation as part of the preferred alternative. The Master Plan considered the eventual removal of the access road from the north and existing roadway bridge, with a new entrance road from the county road to the west, a new parking area on the north side of the river, and a pedestrian bridge near the historic bridge location west of the fort.

## **Fort Larned National Historic Site General Management Plan**

Management objectives in park's GMP include recreating, to the extent possible, the atmosphere of the fort in the 1860s and 1870s and eliminating modern intrusions in the historic core of the fort (NPS 1994). The GMP considered the removal or visual screening of the roadway bridge and existing parking lot to reduce modern intrusions to the historic setting at the park. This plan also called for a new access road from the west, a new visitor center, a new parking area west of the fort, and a new pedestrian bridge from the parking area to the historic core of the park.

### **Cultural Landscape Report**

The cultural landscape report for the park also made specific recommendations that are proposed for implantation under the preferred alternative. These recommendations include removal of the highway bridge, removal and replacement of the existing accessible parking area, removal of the service road approach to the rear of Officer's Row, construction of a new pedestrian bridge, and construction of a new pedestrian route from the new bridge to the historic core of the fort (Quinn Evans et al. 1999). The cultural landscape report also recommended construction of a new entrance road, parking areas, and pedestrian access, while ensuring that these features are compatible with the historic setting of the park.

### **Management Policies 2006**

The proposed project is consistent with NPS *Management Policies 2006*, which provides guidance for management of all national park units. Park facilities are addressed in Chapter 9, which states "The National Park Service will provide visitor and administrative facilities that are necessary, appropriate, and consistent with the conservation of park resources and values. Facilities will be harmonious with park resources, compatible with natural processes, aesthetically pleasing, functional, energy- and water-efficient, cost-effective, universally designed, and as welcoming as possible to all segments of the population. NPS facilities and operations will demonstrate environmental leadership by incorporating sustainable practices to the maximum extent practicable in planning, design, siting, construction, and maintenance."

Roads are addressed in section 9.2, which states "park roads will be well constructed, sensitive to natural and cultural resources, reflect the highest principles of park design, and enhance the visitor experience." The purpose of park roads is to enhance visitor experience by providing access to park facilities, resources, and recreational opportunities. Park roads are not intended to provide fast and convenient transportation, but rather to access areas of recreation while being sensitive to the natural and cultural resources in the area (section 9.2.1.1 of NPS *Management Policies 2006*). Park roads provide access for the protection, use, and enjoyment of the resources that constitute the park.

Parking areas are addressed in section 9.2.4, which states "parking areas and overlooks will be located to not unacceptably intrude, by sight, sound, or other impact, on park resources or values."

## **1984 NPS Park Roads Standards**

The 1984 NPS Park Roads Standards states that roads in national parks serve a distinctly different purpose from most other road and highway systems. Among all public resources, those of the national park system are distinguished by their unique natural, cultural, scenic, and recreational qualities. Park roads are to be designed with extreme care and sensitivity to provide access for the protection, use, and enjoyment of the resources that constitute the national park system.

The 1984 NPS Park Roads Standards also state:

“The engineering design of bridges, culverts, walls, tunnels, and ancillary structures should be in accordance with AASHTO Standard Specifications for Roadway bridges. The design process should be multi-disciplinary to address aesthetic, historical, and environmental considerations.”

## **Director’s Order – 87A: Park Roads and Parkways**

Director’s Order (DO) – 87A states that park roads are constructed only where necessary to provide access for the protection, use, and enjoyment of the natural, historical, cultural, and recreation resources that constitute our national park system. Park roads should enhance the visitor experience while providing safe and efficient accommodation of park visitors and serve essential management action needs. Park roads are designed with extreme care and sensitivity with respect to the terrain and environment through which they pass—they are laid lightly onto the land.

## **BACKGROUND**

The existing roadway bridge at Fort Larned was constructed in 1963, when the fort was in private ownership. The presence of the modern roadway bridge has been regarded by the Park Service as an intrusion within the historic core of the fort for many years. Construction of a new parking area on the west side of the Pawnee River, construction of a pedestrian bridge near the historic bridge location west of the fort, and removal of the roadway bridge has been under consideration for a number of years (NPS 1978) and GMP (NPS 1994). The bridge has deteriorated substantially over the years and is no longer able to meet its designed purpose and is an intrusion on the visitor experience at the fort.

## **SCOPING**

Scoping is a process to identify the resources that may be affected by a project proposal, and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. The park conducted internal scoping with appropriate NPS staff, as described in more detail in the *Consultation and Coordination* chapter. The park also conducted external scoping with the public and interested/affected groups and Native American consultation.

External scoping was initiated with the distribution of a scoping letter to inform the public of the proposal and to generate input on the preparation of this EA. A news release dated May 25, 2011 was mailed to 47 print organizations; six radio stations; 21 television stations; 49 federal, state, and local political entities; and the local Chamber of Commerce and tourism committee. In addition, the scoping letter was mailed to various federal and state agencies and seven affiliated American Indian tribes. Scoping information was also posted on the park’s website.

During the 30-day scoping period, no public responses were received. In addition, during tribal consultation, no responses were received from American Indian tribes. More information regarding external scoping and Native American consultation can be found in the “Consultation and Coordination” chapter.

## ISSUES AND IMPACT TOPICS

### Issues

Issues and impact topics for this project have been identified based on federal laws, regulations, and orders; NPS *Management Policies 2006*; and NPS knowledge of resources at the park, as well as the questions and comments brought forth during internal and external scoping. Impact topics that were carried forward for further analysis in this EA are those where the proposed project is expected to have a measurable effect. Identified topics for evaluation in this EA are floodplains, visitor use and experience, archeological resources, cultural landscape, and park operations. Table 1 discusses the impact topics; the reasons for retaining the topic; and the relevant laws, regulations, and policies.

**TABLE 1. IMPACT TOPICS RETAINED FOR FURTHER EVALUATION AND RELEVANT LAWS, REGULATIONS, AND POLICIES**

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
<b>Floodplains</b>	The proposed bridge, road, parking area, walkway, and other project components would be within the 100-year floodplain of the Pawnee River.	EO 11988, “Floodplain Management”; DO – 77-2: <i>Floodplain Management</i>
<b>Visitor Use and Experience</b>	Road repairs and construction activities would temporarily inconvenience visitors. The proposed project would improve the quality of the visitor experience over the long term by removing several modern intrusions within the historic core of the fort.	<i>NPS Management Policies 2006</i>
<b>Archeological Resources</b>	The proposed bridge, road, parking area, walkway, and other project components would result in ground-disturbing activities that could potentially affect archeological resources such as remnants of the Santa Fe and other military trails west of the Pawnee River.	Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470, et seq. and 36 CFR 800); EO 13084 of May 14, 1998; EO 13007 of May 24, 1996; American Indian Religious Freedom Act of 1978; the Native American Graves Protection and Repatriation Act of 1990; Indian Trust Resources: Secretarial Order 3175; DO - 28; <i>NPS Management Policies 2006</i>

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
<b>Cultural Landscape</b>	Fort Larned National Historic Site is on the national register and the proposed project would involve modifications to the Fort Larned cultural landscape. The project would have a beneficial effect on the cultural landscape at the park by removing the existing roadway bridge and several other modern intrusions within the historic core of the fort.	Section 106 of the National Historic Preservation Act, <i>NPS Management Policies 2006</i> , DO – 28
<b>Park Operations</b>	Construction activities would require temporary changes in park operations. The proposed project would have a beneficial effect on park operations from reduced maintenance requirements.	<i>NPS Management Policies 2006</i> ; <i>OMB Circular A-123</i> ; <i>Federal Managers' Financial Integrity Act of 1982</i> (31 USC 3512(d)); <i>Government Performance and Results Act of 1993</i>

### Impact Topics Dismissed from Further Consideration

The following presents an overview of impact topics that were considered but ultimately dismissed from further analysis. Impact topics were dismissed from further analysis if it was determined that the project did not have the potential to cause substantial change to these resources and values. The regulatory context and baseline conditions relevant to each impact topic were analyzed in the process of determining if a topic should be retained or dismissed from further analysis. An outline of background information used in considering each topic is provided below along with the reasons for dismissing each topic from further analysis.

#### *Soils*

Native soils in the project area are predominantly Bridgeport silt loam, rarely flooded (NRCS 2009). These well-drained soils are derived from silty alluvium and are found on floodplain terraces. Native soils are no longer intact following substantial disturbance from previous development and agricultural activity. The impact to soils would be minimized by following NPS policy of constructing new facilities within previously disturbed areas. The action alternatives, including extending the entrance road by approximately 0.4 mile or constructing new access and maintenance roads, constructing a new parking lot, and constructing a new pedestrian bridge and walkway would result in a disturbance to soils. Alternative 2 would result in disturbance of about 2.33 acres of previously disturbed soils, while Alternative 3 would result in a soil disturbance of approximately 3.46 acres. A temporary increase in erosion is possible from earthwork during construction under both action alternatives. The planned use of temporary and permanent erosion control best management practices (BMPs), including revegetation, would reduce the potential for erosion and soil loss. There would be no new site disturbances or impacts to soils under the no action alternative. Because soil impacts would be minor or less under the action alternatives, this impact topic was dismissed from further analysis in this EA.

### *Geology*

The geology of the park is dominated by flat terrain within the floodplain of the Pawnee River. Alluvial material was deposited within the Pawnee River floodplain during the late Pleistocene and Holocene eras (McLaughlin 1949). No outstanding geologic features are present where proposed facilities would be located. The no action alternative would have no impact to geologic resources. The action alternatives would not affect geologic processes or outstanding geologic features. Because the action alternatives would not affect geologic resources, geology was dismissed as an impact topic in this EA. Additional information on the Pawnee River is found in the “Floodplain” section on page 39.

### *Fish and Wildlife*

A variety of wildlife species are found in the park’s grasslands and in the riparian woodlands along the Pawnee River. White-tailed deer, mule deer, coyote, bobcat, badger, raccoon, opossum, big brown bat, striped skunk, black-tailed jackrabbit, eastern cottontail, fox squirrel, thirteen-lined ground squirrel, and many other mammals are found at the park or in nearby areas (NPS 1994). Resident bird species include blue jay, American crow, ring-necked pheasant, turkey, black-billed magpie, white-crowned sparrow, and house sparrow (NPS 1994). Numerous additional bird species occur at the park seasonally or during migration. No surveys have been conducted for amphibians and reptiles, but bull snakes are known to occur around the historic buildings, and additional reptile and amphibian species are expected to occur (NPS 1994). The Pawnee River supports fish seasonally during the spring and early summer (NPS 1994). Catfish and bullhead are known to occur in the river. Alternatives 2 and 3 would result in the loss or disturbance of about 2.33 and 3.46 acres of grassland vegetation, respectively, reducing the amount and quality of habitat for grassland wildlife species such as small mammals and ground nesting birds. Removal of a few trees would slightly reduce habitat for tree-nesting bird species and squirrels. The park would implement resource protection measures (Table 2) in compliance with the Migratory Bird Treaty Act requirements to avoid and minimize impacts to birds that could be nesting in the proposed disturbance areas. Because the proposed road and parking area are in a previously disturbed area with marginal habitat for wildlife, adverse impacts to wildlife are expected to be negligible. In addition, impacts would be offset by removing the existing roadway bridge and parking areas and revegetating about 0.98 acre in these areas. There would be no impact to wildlife under the no action alternative. Because impacts to wildlife under the action alternatives would be less than minor, wildlife was dismissed as an impact topic in this EA.

### *Special Status Species*

Special status species include species listed as threatened or endangered under the Endangered Species Act (ESA) and other species considered sensitive by the park. On February 3, 2011, the park received the most current list of federally listed endangered and threatened animals and plants from the U.S. Fish and Wildlife Service (2010). The federally listed endangered whooping crane (*Grus americana*), and the federal candidate species, the lesser prairie-chicken (*Tympanuchus pallidicinctus*) are known to occur in Pawnee County. Lesser prairie-chickens occur in sandy, mixed and shortgrass prairies and occasionally sand

prairie habitat in the southwestern part of Kansas (Mote et al. 1998; Jensen et al. 2000). Whooping cranes are regular spring and fall transients through Kansas, generally passing through central Kansas in March-April and October-November. Preferred resting areas are wetlands in level to moderately rolling terrain away from human activity where low, sparse vegetation permits ease of movement and an open view (Kansas Department of Wildlife and Parks 2000). Lesser prairie-chicken and whooping crane habitat does not occur in the proposed project area. However, whooping crane may forage in the Pawnee River during migration. Timing restrictions, described in more detail in Mitigation Measures, would be implemented to mitigate this potential impact to the federally listed species.

The Kansas Department of Wildlife and Parks (KDWP) maintains a list of state-listed threatened and endangered species and species in need of conservation. Habitat and range information for Kansas listed species was obtained from the KDWP web site (KDWP 2011). In addition to the whooping crane, the KDWP lists the bald eagle, eastern spotted skunk, Eskimo curlew, least tern, piping plover, and snowy plover as state threatened or endangered species. Pawnee County is within the historic range of the bald eagle, and this species could occasionally occur in the project area during migration or foraging. Pawnee County is within the historic range of eastern spotted skunk, Eskimo curlew, least tern, piping plover, and snowy plover; however, there are no recent records of these species occurring and they have likely been extirpated from the county.

KDWP lists black tern, bobolink, Chihuahuan raven, eastern hognose snake, ferruginous hawk, golden eagle, long-billed curlew, short-eared owl, western hognose snake, and whip-poor-will as species in need of conservation in Pawnee County (KDWP 2011). Black terns nest in marshes and large bodies of open water. The bobolink occurs casually in western Kansas in tall grassland habitats. The Chihuahuan raven is uncommon in desert and scrubby grassland in western Kansas. The eastern hognose snake prefers sandy habitats, primarily in the eastern part of the state. Ferruginous hawks occur year-round in western Kansas, especially in farmlands, marshes, and other open areas where rodents are numerous. Golden eagles occur over open grasslands in western Kansas and breeding has been recorded in the westernmost counties. The long-billed curlew is an uncommon transient in the western half of the state and typically nests in arid areas far from water. The short-eared owl is rare in western Kansas and forages over fields, marshes, and fencerows. The western hognose snake is generally found in grassland or sand prairie in the western two-thirds of Kansas reaching its peak abundance on the High Plains. The whip-poor-will occurs in woodlands in the eastern part of the state; its distribution in the western portion of the state is not well known. Black terns, Chihuahuan ravens, eastern hognose snakes, long-billed curlews, and whip-poor-wills are unlikely to occur in the project area due to lack of suitable habitat. Bobolinks, ferruginous hawks, golden eagles, short-eared owls, and western hognose snakes could potentially occur in the project area in low numbers during migration or occasional foraging activities. Timing restrictions, described in more detail in Mitigation Measures, would be implemented to mitigate this potential impact to the state listed threatened and endangered, species and species in need of conservation.

After consulting internet sources and with the park wildlife biologist, it was determined that there would be no effect on listed, candidate, or sensitive wildlife species or their habitat as a result of proposed activities, therefore, this topic was dismissed from further analysis.

### *Vegetation*

Historically, vegetation at the park consisted of two plant communities – prairie grasslands and riparian woodlands (NPS 1994). Vegetation resources in the project area have been substantially altered by previous disturbances and development. The native prairie grasslands have been disturbed by cultivation, while the woodlands along the Pawnee River were cut for firewood. Since establishment of the park in 1964, the woodlands have been allowed to regrow and efforts have been made to restore the prairie. Currently, vegetation within the road routes and parking area proposed under the action alternatives is dominated by nonnative, invasive species, mostly smooth brome with smaller amounts of green foxtail. A few native prairie species also are present including big bluestem, little bluestem, sideoats grama, Indian grass, and switchgrass. Predominant trees within the riparian woodland along the Pawnee River include American elm, black willow, boxelder, cottonwood, green ash, slippery elm, and red mulberry. The understory species include smooth brome, poison ivy, pokeweed, poison hemlock, and coralberry. Alternatives 2 and 3 would result in the loss or disturbance of about 2.33 and 3.46 acres, respectively, of previously disturbed grassland vegetation, respectively. The action alternatives also would result in removal of a few trees at the new pedestrian bridge site. The park would implement resource protection measures (Table 2) to avoid and minimize impacts to vegetation. The area of the removed roadway bridge and parking area north of the Pawnee River, a total of 0.98 acre, would be revegetated with native species. There would be no new site disturbances or impacts to vegetation under the no action alternative. Because vegetation impacts would be minor or less, this impact topic was dismissed from further analysis in this EA.

### *Wetlands*

Executive Order (EO) 11990, NPS *Management Policies 2006*, and DO – 77-1 direct that wetlands be protected, and that wetlands and wetland functions and values be preserved. These orders and policies further direct that direct or indirect impacts to wetlands be avoided when practicable alternatives exist. The majority of the project area is covered by upland prairie grassland vegetation. Wetlands in the project area were delineated on October 13 and 14, 2010 (ERO 2010). Wetlands were found only within the Pawnee River corridor. The Pawnee River is a riverine wetland with surface water present seasonally. The river channel is about 108 feet wide at the existing bridge and about 60 feet wide at the proposed pedestrian bridge crossing. In addition, a small (265-square-foot) ephemeral emergent wetland occurs on the south bank of the Pawnee River, east of the existing bridge. The action alternatives would result in negligible temporary impacts to the Pawnee River channel during construction from the operation of equipment with the channel to remove the pier and abutments and restore the channel bed and banks to natural contours. The long-term effect on wetlands would be beneficial from removing the pier from the streambed. The area formerly occupied by the pier would become part of the streambed following construction, resulting in an increase of about 280 square feet of streambed. No impacts to wetlands would occur from the no action alternative. Because short-term impacts to wetlands would be negligible and long-term impacts would be beneficial, this topic was dismissed from detailed discussion in this EA.

### *Water Resources*

The Clean Water Act and NPS *Management Policies 2006* direct the Park Service to protect park waters and avoid pollution of park waters by human activities. The Pawnee River is within the project area and generally flows during the spring and early summer. The water in the river has numerous dissolved minerals and carries a heavy silt load (NPS 1994). A stormwater pollution prevention plan (SWPPP) would be implemented during construction to prevent or minimize the potential for erosion and transport of sediments to the Pawnee River. Revegetation of disturbed areas and other erosion control measures would minimize the potential for long-term adverse effects to water quality. The potential for impacts to water quality from the action alternatives would be local, short-term, negligible, and adverse. The no action alternative would have no effect on water resources. For these reasons, water resources was dismissed as an impact topic in this EA.

### *Air Quality and Climate Change*

The park is in a rural area of Kansas that is relatively unaffected by anthropogenic sources of air pollution. Anthropogenic emissions of pollutants such as nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) are relatively low in Pawnee County (KDHE 2008). Earthwork and hauling material during construction would temporarily increase dust and vehicle emissions under the action alternatives and would result in localized effects on air quality. Hydrocarbons, nitrogen oxide, and sulfur dioxide vehicle emissions would be rapidly dissipated. Visibility, deposition, and other air quality-related values are not expected to be appreciably impaired. These effects would be short-term, negligible, and adverse. Neither overall park air quality nor regional air quality would be more than negligibly affected by the short-term increase in emissions. The action alternatives would not result in a long-term increase in traffic and vehicle emissions in the park. The no action alternative would have no effect on existing air quality.

Construction activities associated with implementation of the action alternatives would contribute to increased greenhouse gas (GHG) emissions but such emissions would be short-term, ending with the cessation of construction. Any effects of construction-related GHG emissions on climate change would not be discernible at a regional scale, as it is not possible to meaningfully link the GHG emissions of such individual project actions to quantitative effects on regional or global climatic patterns. Because the action alternatives would result in short-term negligible adverse effects to air quality during construction and it is not possible to meaningfully link the GHG emissions from the project climate change, air quality and climate change were dismissed as impact topics in this EA.

### *Lightscape*

In accordance with NPS *Management Policies 2006*, the Park Service strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human-caused light. The park limits the use of artificial outdoor lighting to that necessary for security and human safety. The park also strives to ensure that all outdoor lighting is shielded to the maximum extent possible to keep light on the intended subject and out of the night sky.

The project area is in a rural area with ambient lighting from the nearby Highway 156 and 180th Avenue. Currently there is lighting at the existing parking area. The existing solar powered lights at the parking area would be salvaged and relocated to the new parking area. Additional lighting may be required for the new parking area. The minimum amount of lighting to provide security and human safety would be used. All lighting would be directed downward. The action alternatives would not have an appreciable effect on the ambient lightscape and would have a local long-term negligible adverse effect on the night sky. The no action alternative would have no effect on the lightscape. Because impacts to the lightscape would be minor or less, this impact topic was dismissed from further analysis in this EA.

### *Natural Soundscapes*

In accordance with NPS *Management Policies 2006* and *DO – 47: Sound Preservation and Noise Management*, an important part of NPS mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among national park system units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The project area includes previously disturbed areas near roads, parking areas, and other facilities with frequent visitor and staff use. The project area has more traffic and background noise than most areas of the park. The action alternatives would introduce a temporary increase in noise from construction-related activities including equipment, trucks, and worker traffic. The impact to the soundscape would be localized, short-term, minor, and adverse under the action alternatives. The no action alternative would have no impact on the existing soundscape. For these reasons, natural soundscapes was dismissed as an impact topic in this EA.

### *Historic Structures*

Section 106 of the NHPA of 1966, as amended (16 USC 470, et seq.) and its implementing regulations under 36 CFR 800 require all federal agencies to consider the effects of federal actions on cultural properties, including historic structures, eligible for or listed in the national register. For a structure to be listed in the national register, it must be associated with an important historic event, person(s), or embodies distinctive characteristics or qualities of workmanship. Nine existing historic structures and several reconstructed historic structures form the core of the park. These structures include two barracks buildings, shops building, new commissary storehouse, old commissary storehouse, quartermaster storehouse, two officers' quarters buildings, the commanding officer's quarters, the reconstructed blockhouse, and the reconstructed flagstaff.

Section 106 consultation with SHPO is ongoing and will be completed in a separate document prior to issuing the final decision document. Because historic features such as the

existing structures are an integral part of the park, potential effects to historic structures are discussed in the “Cultural Landscape” section of the “Affected Environment and Environmental Consequences” chapter and historic structures has been dismissed as a separate impact topic in this EA.

### *Ethnographic Resources*

The Park Service defines ethnographic resources as any “landscape, objects, plants and animals, or sites and structures that are important to a people’s sense of purpose or a way of life.” Various indigenous groups occupied western Kansas and the area around Fort Larned prior to the fort’s establishment in 1860. American Indian tribes in the area included primarily the Cheyenne, Kiowa, Arapaho, and Comanche (Quinn Evans Architects et al. 1999). American Indians likely camped and hunted bison near the present park site. Fort Larned has a history of European American use since the fort was established in 1860. There are no known structures, landscape features, or other significant ethnographic resources associated with any identified ethnic group within the project area or general vicinity. No traditional cultural properties of American Indian origin or European American origin have been identified in the project area for eligibility evaluation and possible nomination to the national register. Consultation with American Indian tribes is discussed in the “Consultation and Coordination” section of this EA (page 54). Potential effects to archeological resources and the cultural landscape are discussed in the “Affected and Environment and Environmental Consequences” chapter of this EA (page 48).

It is very unlikely that ethnographic resources would be affected under the action alternatives or no action alternative because no ethnographic resources are known to occur in the project area and appropriate steps would be taken to protect any human remains, funerary objects, sacred objects, or objects of cultural patrimony inadvertently discovered. For these reasons, ethnographic resources was dismissed as an impact topic in this EA.

### *Museum Collections*

According to DO – 24: *Museum Collections*, the Park Service requires the consideration of impacts on museum collections. Museum collections include prehistoric and historic objects, artifacts, works of art, archival material, and natural history specimens. These collections may be threatened by fire, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventive conservation, supplemented by conservation treatment, when necessary. The primary goal is preservation of artifacts in the most stable condition possible to prevent damage and minimize deterioration. If artifacts were recovered during monitoring for this project, then there would be a slight increase to park collections. The action alternatives would have negligible impacts on the park’s museum collections and the no action alternative would not affect museum collections; therefore, museum collections was dismissed as an impact topic in this EA.

### *Indian Trust Resources*

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of the Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights. The order represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. None of the lands of the park are trust resources according to this definition. In addition, any Indian titles to such lands now within the park have been extinguished through cession or sale. Therefore, Indian trust resources was dismissed as an impact topic in this EA.

### *Wilderness*

The Wilderness Act, NPS *Management Policies 2006*, and DO – 41: *Wilderness Preservation* require that all lands administered by the Park Service be evaluated for their suitability for inclusion within the National Wilderness Preservation System. There are no designated or proposed wilderness areas in the park; therefore, this topic was dismissed from further analysis in this EA.

### *Wild and Scenic Rivers*

No Wild and Scenic Rivers are designated within the park; therefore, this impact topic was dismissed in this EA.

### *Environmental Justice*

Presidential EO 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. According to the Environmental Protection Agency, environmental justice is the

...fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The goal of ‘fair treatment’ is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects, and identify alternatives that may mitigate these impacts.

Pawnee County has both minority and low-income populations; however, environmental justice was dismissed as an impact topic for the following reasons:

- The park staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of either action alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.
- The impacts associated with implementation of either action alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of either action alternative would not result in any identified effects that would be specific to any minority or low-income community.
- The impacts to the socioeconomic environment resulting from implementation of either action alternative are expected to be beneficial over the long term. In addition, the park staff and planning team do not anticipate the impacts on the socioeconomic environment to appreciably alter the physical and social structure of nearby communities.

### *Socioeconomics*

The park is in Pawnee County in rural central Kansas. Agriculture and health care are the most important industries in the county. In 2008, the population of Pawnee County was 6,291, of which 3,599 lived in the Town of Larned (Pawnee County 2009). The only other population centers in the county are the small towns of Burdett, Garfield, and Rozel. The population of the county has declined steadily for the past three decades.

The park is one of the main tourist attractions in the county. The action alternatives would improve parking and access to the park and would improve the overall quality of the visitor experience, which is beneficial to the local economy. Construction-related spending also would provide a short-term minor benefit to the economy through employment and purchase of construction materials and services. The no action alternative would have no effect on the regional economy. Because the action alternatives would have beneficial effects on socioeconomics and the no action alternative would have no effects on socioeconomics, this topic was dismissed from detailed discussion in this EA.

### *Visual Resources*

Localized short-term visual impacts would occur during construction from the presence of construction equipment, materials, and ground disturbances. Construction of new roads and a new parking area under the action alternatives would create a slight long-term change to the visual character of the area, but the road and parking area would be screened by the vegetation along the Pawnee River and would not be visible from the historic core of the park. The new pedestrian bridge would be a new structure visible from the historic core of

the park, but would be a visual improvement over the existing roadway bridge that would be removed. The existing parking areas and selected road segments in the historic core of the fort would be removed and restored, removing a visual intrusion in the park. Under the no action alternative, the project would not be constructed and there would be no effect on visual resources. The overall impacts on visual resources from the action alternatives would be local, short- and long-term, and minor. For this reason, visual resources was dismissed as an impact topic in this EA.



# ALTERNATIVES

## INTRODUCTION

This chapter describes the no action alternative, the preferred alternative for constructing a new pedestrian bridge and parking area and removing the deteriorated roadway bridge, and a second action alternative for removing the existing roadway bridge and constructing a new pedestrian bridge and parking area, but includes changing the entrance from State Highway 156 to 180th Avenue. Under the no action alternative, the park would continue to use the existing bridge as its primary entrance, a new pedestrian bridge would not be constructed, and existing conditions would continue. No work is proposed in the 44-acre Santa Fe Trail Ruts section of the park under any alternative. The preferred alternative was developed to address the purpose and need for the project to provide a safe, easily accessible, and historically accurate entrance to the park, while preserving park natural and cultural resources and improving the efficiency of park operations.

The preferred alternative presents the NPS preferred management action and defines the rationale for the action in terms of resource protection and management, visitor and operational use, cost, and other applicable factors. The other action alternative is also carried forward for further analysis. Other alternatives that were considered but eliminated from detailed analysis are discussed in this chapter. Also included in this chapter is a comparison of how well the alternatives meet the project objectives and a summary comparison of the environmental effects of the alternatives.

A value analysis (VA) study was conducted on April 19 and 20, 2011 (NPS 2011). The VA looked at planning criteria and constraints as well as a variety of alternatives and their benefits, drawbacks, and costs to construct and maintain. Four alternatives, including the no action alternative were analyzed. Those that scored the highest were carried forward and developed into two full action alternatives, both of which are presented in this EA along with the no action alternative. Representatives from the fort and the NPS Denver Service Center participated in the study.

The objectives of the VA study were the following:

- Provide visitors a safe, easily accessible, and historically accurate entrance to the park
- Reduce maintenance requirements and costs due to deficiencies in the condition of the bridge, entrance road, and parking area
- Provide park employees with a safe and healthy working environment to better meet park goals
- Protect park natural and cultural resource values.

The no action alternative was the least expensive alternative and provided the least benefit to the Park Service. The preferred alternative was the least expensive of the three action alternatives analyzed and provided the greatest advantage to the Park Service. The VA

study and the resulting report (NPS 2011) assisted in the selection of the preferred alternative for the project.

## **ALTERNATIVE 1 – NO ACTION ALTERNATIVE**

Under the no action alternative, the existing roadway bridge would not be demolished and a new pedestrian bridge would not be constructed (Figure 2). The park would continue to use the existing roadway bridge and parking area. The bridge load capacity would continue to be restricted to 10 tons. The no action alternative would not address the needs of the park to provide a safe, easily accessible, and historically accurate entrance to the park. The existing bridge would remain in a deteriorated condition and would eventually need to be demolished and rebuilt. The estimated cost of the no action alternative is approximately \$1 million from the eventual need to replace the bridge deck (NPS 2011).

The no action alternative provides a basis for comparison with the action alternatives and the respective environmental consequences. Should the no action alternative be selected, the Park Service would respond to future needs and conditions without major actions or changes in the present course.

FIGURE 2. ALTERNATIVE 1 – NO ACTION



**Alternative 1  
No action**

Environmental Assessment  
Traffic Bridge, New Pedestrian  
Bridge, and parking facilities  
Fort Larned National Historic Site  
Pawnee County, Kansas

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## **ACTIONS COMMON TO BOTH ACTION ALTERNATIVES**

### **Demolish and Remove Existing Roadway Bridge**

The existing roadway bridge would be demolished and removed (Figure 3 and Figure 4), followed by site grading and revegetation. All components of the bridge including the deck, support structure, abutments, and piers would be removed and disposed of off-site. Measures would be taken to minimize the amount of debris entering the Pawnee River during demolition. A SWPPP would be implemented during construction to prevent or minimize the potential for erosion and transport of sediments to the Pawnee River. The abutments of a previously existing bridge just west of the roadway bridge also would be demolished and removed. After the existing bridge is demolished, the site would be graded to match the natural contours of the river channel and revegetated.

**FIGURE 3. EXISTING ROADWAY BRIDGE**



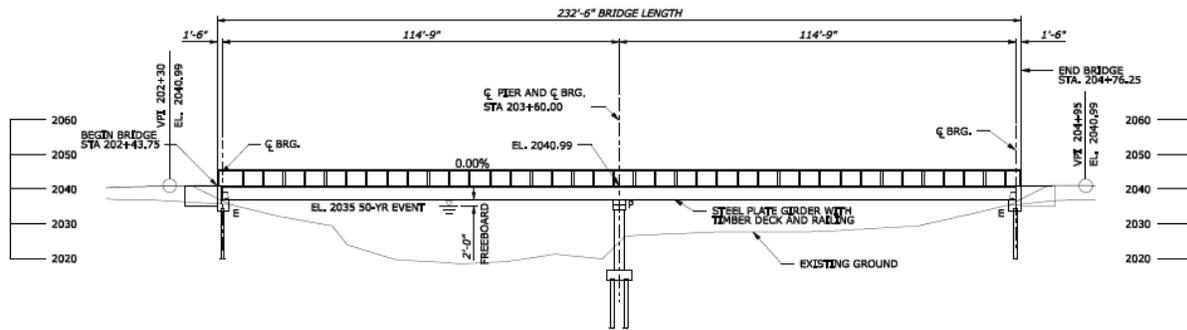
**FIGURE 4. BRIDGE PIERS WITHIN PAWNEE RIVER CHANNEL**



### **Construct New Pedestrian Bridge**

A new accessible pedestrian bridge would be constructed providing access from the new parking area to the historic Fort Larned site. The bridge would be designed as a pedestrian bridge, but also would have the capacity to allow park maintenance and emergency vehicle use. The bridge would be approximately 250 feet long and approximately 10 feet wide with an additional 1,000 feet of connecting walking surface. The bridge would be constructed with a design that would be compatible with the historic setting of Fort Larned as outlined in previous planning documents such as the GMP and Cultural Landscape Report (NPS 1984; Quinn Evans et al. 1999). The bridge would have a rustic design, similar to the bridge that would have been present historically, but would be built to modern construction standards. The bridge design would be developed in consultation with the Kansas SHPO. Figure 5 shows an example of the type of bridge that would be built. The bridge crossing site was chosen to approximate the location of the historic entrance to Fort Larned from the Santa Fe Trail. Construction of the bridge and walkway may require removal of a few small trees in the riparian corridor and would result in the removal of approximately 0.25 acre of vegetation in a previously disturbed area.

**FIGURE 5. PROPOSED PEDESTRIAN BRIDGE DESIGN**



### Removal of Parking Areas

The existing 0.60-acre gravel and pavement parking area just north of the roadway bridge (Figure 6) would be removed and revegetated. The solar powered lighting system at the parking area would be salvaged for use in the new parking area. The existing interpretive kiosk would also be salvaged and reused at the new parking area.

The parking area south of the bridge for visitors with disabilities would also be removed and revegetated. Removing the parking area south of the bridge would remove approximately 0.38 acre of existing disturbance within the historic core of the fort.

**FIGURE 6. EXISTING PARKING AREA NORTH OF PAWNEE RIVER**



### **Removal of Segment of Service Road**

A segment of the service road entering from the west and connecting to the northwest corner of officers' row would be removed. Removing the connecting service road would remove approximately 0.38 acre of existing disturbance within the historic core of the fort.

### **Pave Loop Road in Picnic Area**

The gravel loop road (Figure 7) in the existing picnic area at the park entrance from Highway 156 would be paved.

Following removal, all areas would be revegetated with native plant species.

**FIGURE 7. PICNIC AREA LOOP ROAD**



### **Construct New Parking Area**

A new paved asphalt parking area would be constructed to provide access to the new pedestrian bridge. Construction of the parking area would result in removal of approximately 0.86 acre of vegetation in a previously disturbed area. Several existing large trees would be left in place to provide shade. The new parking area would have restroom facilities with composting toilets and would include accessible parking to replace the accessible parking area to be removed from the core area of the fort. If necessary, the new parking area would include a stormwater detention facility to capture runoff from the parking area.

## **Traffic Control and Schedule**

Traffic control measures would be established during construction. The existing bridge would not be demolished until after completion of the other components of the project to allow visitors access to the park during construction. Construction of the new road, parking area, and bridge would occur in spring through fall in either 2012 or 2013, depending on available funding.

## **Staging Areas**

The existing parking area and areas previously disturbed by farming, such as those west of 180th Avenue on the western edge of the park, would be used to stage equipment and supplies during demolition and construction.

## **ALTERNATIVE 2 – USE EXISTING PARK ENTRANCE – PREFERRED ALTERNATIVE**

Under the preferred alternative, the existing parking area and the existing accessible parking area would be removed, and the entrance road would be extended by approximately 0.4 mile to a new parking area, including a picnic area and restrooms, with access to a new pedestrian bridge (Figure 8). The estimated construction cost of the alternative is \$1,340,110 (NPS 2011).

## **Remove Existing Road Segment and Parking Areas**

The short section of road, approximately 0.17 acre of existing disturbance, from the existing parking area to the current bridge crossing site would also be removed and revegetated.

FIGURE 8. ALTERNATIVE 2 – PREFERRED



**Alternative 2 - Preferred  
Road to new bridge utilizes existing park entrance**

Environmental Assessment  
Traffic Bridge, New Pedestrian  
Bridge, and parking facilities  
Fort Larned National Historic Site  
Pawnee County, Kansas

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## **Extend and Repave Entrance Road**

The entrance road to the park from Highway 156 would be extended by 0.4 mile from the existing parking area to the new parking area. The new road would be parallel to the north bank of the Pawnee River (Figure 9). Construction of the road would result in removal of approximately 1.16 acres of vegetation in a previously disturbed area. Where vegetation is removed, topsoil would be stockpiled for use in reclamation of these areas. Following construction, temporarily disturbed areas would be revegetated with native plant species. The width and design of the new road would match the existing road and would be paved with asphalt. The existing section of the entrance road would be repaved and restriped to match the new road.

**FIGURE 9. PROPOSED ROAD ALIGNMENT**



## **ALTERNATIVE 3 – PROVIDE NEW ACCESS FROM 180TH AVENUE**

Under alternative 3, a new entrance road with turn lanes would be constructed from 180<sup>th</sup> Avenue, extending east approximately 0.3 mile and terminating at a new parking area with access to a new pedestrian bridge (Figure 10). The estimated construction cost of the alternative is \$1,435,360 (NPS 2011).

### **Remove Existing Road Segment and Parking Areas and Construct New Service Road**

The existing entrance road segment, approximately 0.55 acre of existing disturbance, from the picnic area loop to the existing parking area would be removed. A new service road would be built, extending from the picnic area parallel along the north bank of the Pawnee River to the new parking area.

FIGURE 10. ALTERNATIVE 3



**Alternative 3**  
**Road to new bridge establishes park entrance off Rt 180**

Environmental Assessment  
Traffic Bridge, New Pedestrian  
Bridge, and parking facilities  
Fort Larned National Historic Site  
Pawnee County, Kansas

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### **Construct New Entrance Road with Turn Lanes**

A new entrance road with turn lanes would be constructed from 180th Avenue, extending east approximately 0.3 mile and terminating at a new parking area with access to the new pedestrian bridge. Construction of the new entrance road with turn lanes would result in removal of approximately 1.24 acre of vegetation in a previously disturbed area. Improvements would also be made to the intersection of Highway 156 and 180th Avenue.

## **ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

### **Rehabilitate Existing Bridge or Construct New Bridge in Existing Location**

The Park Service considered demolishing the existing roadway bridge and replacing it with a new bridge at the current location. Under this alternative, the access road would not be extended and the park would continue to use the existing parking area. A reduction in size and capacity of the bridge from a roadway to a pedestrian bridge was also considered. These alternatives were eliminated because they would not meet the objective of providing a historically accurate entrance to the park and would not remove modern intrusions from the core area of the park. In addition, these alternatives are not consistent with the park's GMP, which calls for construction of a new pedestrian bridge at the site of the historic crossing of the Pawnee River (NPS 1994). The Park Service also considered reusing the existing piers and replacing the bridge deck. For the reasons stated above, these alternatives were also considered but eliminated from detailed analysis.

### **Construct New Bridge at Historic Location with Pedestrian Trail Connection to Existing Parking Area**

The Park Service considered constructing a new pedestrian bridge at the historic location without a new parking area. The existing parking area north of the Pawnee River would be retained and new pedestrian trail would be constructed from the existing parking area to the new bridge. This alternative was eliminated because it would not meet accessibility requirements. In addition, this alternative is not consistent with the park's GMP, which calls for removal of the existing parking area and construction of a new parking area adjacent to the new pedestrian bridge (NPS 1994).

## **RESOURCE PROTECTION MEASURES**

To prevent and minimize potential adverse impacts associated with the preferred alternative, BMPs and resource protection measures would be implemented during the construction and post-construction phases of the project (Table 2).

TABLE 2. RESOURCE PROTECTION MEASURES

Resource Area	Mitigation
<b>General Considerations</b>	<p>Construction zones would be identified with construction fence, silt fence, or some similar material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone. Disturbances would be limited to areas inside the designated construction limits. No machinery or equipment would access areas outside the construction limits.</p> <p>Construction equipment staging would occur in the existing parking lot and areas previously disturbed by farming, such as those west of 180th Avenue. Off-site equipment and vehicle parking would be limited to designated staging areas.</p> <p>Contractors would be required to properly maintain construction equipment (i.e., mufflers and brakes) to minimize noise.</p> <p>Material and equipment hauling would comply with all legal load restrictions.</p> <p>All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project work limits upon project completion.</p>
<b>Air Quality</b>	<p>Dust control would occur, as needed, on active work areas where dirt or fine particles are exposed.</p> <p>Construction equipment/vehicles would not be allowed to idle longer than 15 minutes when not in use.</p>
<b>Vegetation / Wetlands</b>	<p>All temporarily disturbed ground would be reclaimed using appropriate BMPs that include planting with NPS-approved species. Until the soil is stable and vegetation is established, erosion control measures would be implemented to minimize erosion and prevent sediment from reaching streams.</p> <p>Temporary barriers would be used to protect trees, plants, and root zones adjacent to the construction site as needed.</p> <p>To prevent the introduction of, and minimize the spread of, nonnative vegetation and noxious weeds, the following measures would be implemented during construction:</p> <ul style="list-style-type: none"> <li>• Soil disturbance would be minimized;</li> <li>• All construction equipment would be pressure washed and/or steam cleaned before entering the park to ensure that all equipment, machinery, rocks, gravel, and other materials are clean and weed free;</li> <li>• All haul trucks bringing fill materials from outside the park would be covered to prevent seed transport;</li> <li>• Vehicle and equipment parking would be limited to within construction limits or approved staging areas; and</li> <li>• All fill, rock, and additional topsoil obtained from sources outside the park would be taken from weed-free sources.</li> </ul> <p>Native vegetation would be used to revegetate all disturbed areas.</p> <p>Monitoring and follow-up treatment of exotic vegetation would occur after project activities are completed.</p>
<b>Wildlife</b>	<p>Land clearing and tree removal would be scheduled prior to, or after completion of the migratory bird nesting season, which typically commences in April and continues through July.</p>
<b>Water Quality and Soils</b>	<p>Erosion control BMPs for drainage and sediment control, as identified and used by the Park Service and FHWA would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. These practices may include, but are not limited to, silt fencing, filter fabric, coir logs, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities. Silt fencing fabric would be inspected daily during project work and weekly after project completion, until removed. Accumulated sediments would be removed when the fabric is estimated to be approximately 75% full. Silt removal would be accomplished in such a way as</p>

ALTERNATIVES

Resource Area	Mitigation
	<p>to avoid introduction into any flowing water bodies.</p> <p>Regular site inspections would be conducted to ensure that erosion control measures are properly installed and functioning effectively.</p> <p>The operation of ground-disturbing equipment would be temporarily suspended during large precipitation events to reduce the production of sediment that may be transported to streams.</p> <p>A storm water pollution prevention plan (SWPPP) would be developed and approved by the Park Service, and submitted to the Kansas Department of Health and Environment prior to commencing construction.</p> <p>All equipment would be maintained in a clean and well-functioning state to avoid or minimize contamination from fluids and fuels. Prior to starting work each day, all machinery would be inspected for leaks (e.g., fuel, oil, and hydraulic fluid) and all necessary repairs would be made before commencing work.</p> <p>A hazardous spill plan would be required from the contractor prior to the start of construction stating what actions would be taken in the case of a spill and preventive measures to be implemented. Hazardous spill clean-up materials would be on-site at all times. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery (e.g., fuel, oil, and hydraulic fluid) used in project implementation.</p>
<b>Floodplains</b>	<p>Natural drainage and natural contours would be preserved to the extent practicable. After the traffic bridge is removed, the site would be graded to match the natural contours of the river channel.</p> <p>Removal of riparian vegetation would be minimized. Disturbed areas would be revegetated as soon as practicable following construction.</p> <p>Structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60).</p> <p>Any work conducted in the Pawnee River would occur during low streamflow. Construction would be halted if high precipitation or high flows occur.</p>
<b>Visual Resources</b>	<p>The new pedestrian bridge would be designed to be similar in appearance to the bridge that existed at the site in the 1860s to be visually compatible with the historic setting at Fort Larned. Although the intent is to match the historic appearance of the bridge, the bridge would be built to modern standards.</p> <p>Disturbed areas would be revegetated as soon as practicable following construction.</p>
<b>Visitor Experience and Park Operations</b>	<p>Visitors would be informed in advance of construction activities via a number of outlets including the park website, newspaper, and visitor center. The park would coordinate with the contractor on the construction schedule, and update visitors and information sources periodically on construction work to inform visitors of the project status and access.</p> <p>A traffic control plan would be implemented during construction. The existing roadway bridge would remain open until the new bridge and parking area are complete. Emergency access would be available on the existing maintenance road.</p>

Resource Area	Mitigation
<p><b>Cultural Resources</b></p>	<p>Monitoring by a professional archeologist would be conducted during construction activities.</p> <p>In the unlikely event that previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery would be halted until the resources are identified and documented and, if the resources cannot be preserved in situ, an appropriate mitigation strategy developed in consultation with the state historic preservation officer and, if necessary, associated American Indian tribes. Members of American Indian Tribes would be allowed to monitor excavation activities during construction for the presence of cultural resources.</p> <p>In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.</p> <p>The Park Service would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors also would be instructed on procedures to follow if previously unknown archeological resources are uncovered during construction.</p> <p>Equipment and material staging areas would avoid known archeological resources.</p>

## ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative “that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative.”

The preferred alternative, Alternative 2, is the environmentally preferable alternative for several reasons: 1) it would best preserve the cultural features of the park because it removes the existing roadway bridge and several other modern intrusions within the historic core of the fort while constructing a new bridge more compatible with the historic setting of the fort, and 2) it would best preserve the natural resources of the park because removal of the existing roadway bridge would remove an existing obstruction within the floodplain. For these reasons, the preferred alternative causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources, thereby making it the environmentally preferable alternative.

By contrast, the no action alternative is not the environmentally preferable alternative because although there would be no construction or ground-disturbing activities that would damage previously undisturbed elements of the biological and physical environment 1) it would not protect park natural and cultural resources because it would not address deficiencies in the condition of the existing bridge and 2) it would not reduce the existing modern intrusions within the historic core of the fort.

Alternative 2 is environmentally preferable over Alternative 3 because it results in less impact to natural resources such as soils and vegetation. Alternative 2 would provide the

widest range of beneficial uses without degradation, and would fulfill the park’s stewardship responsibility to protect resources. Alternative 2 would protect park historic, cultural, and natural resources and would improve the efficiency of park operations.

## ALTERNATIVES COMPARISON TABLE

A comparison of the alternatives and the degree to which each alternative fulfills the needs and objectives of the proposed project is summarized in Table 3.

**TABLE 3. ALTERNATIVES COMPARISON**

No Action Alternative	Alternative 2 (Preferred Alternative) Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge	Alternative 3 – Provide New Access from 180th Avenue
The existing roadway bridge and parking areas would not be removed. Visitors would continue to use the existing roadway bridge to access the park.	The existing roadway bridge would be demolished, the existing parking area would be removed, the loop road in the existing picnic area would be paved, and the entrance road would be extended by approximately 0.4 mile to a new pedestrian bridge, parking area, and walkway. Several additional modern intrusions within the historic core of the fort would be removed.	A new access road with turn lanes would be constructed from 180th Avenue extending 0.3 mile to a new parking area, and a new service road would be built extending from the picnic area along the north bank to the parking area. All other features would be the same as Alternative 2.
<b>Meets Objectives?</b>		
Project objectives would not be fulfilled because park visitors would not be provided with a safe, accessible, and historically accurate entrance to the historic core of the fort and the deteriorated condition of the existing roadway bridge would not be addressed.	Project objectives would be fulfilled by addressing maintenance and safety issues with the existing roadway bridge. Visitors would be provided a safe and historically accurate entrance to the park. Several modern intrusions within the historic core of the fort would be removed. Park natural resources would be protected by mitigation measures.	Although Alternative 3 would fulfill the project objectives, it was not selected as the preferred alternative because Alternative 2 was less expensive and had fewer impacts to natural resources such as soils and vegetation.

## IMPACT SUMMARY

A summary of potential environmental effects for the alternatives is presented in Table 4.

**TABLE 4. IMPACT SUMMARY TABLE**

Impact Topic	No Action Alternative	Alternative 2 (Preferred Alternative) Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge	Alternative 3 – Provide New Access from 180th Avenue
<b>Floodplains</b>	There would be no adverse impact on floodplains. Floodplains would not change from existing conditions.	There would be a local long-term minor adverse impact to floodplain functions and values. Project features would be designed not to impede flows or increase the risk of flooding. There would be a local long-term minor benefit to	Impacts to floodplains under Alternative 3 would be the same as Alternative 2.

Impact Topic	No Action Alternative	Alternative 2 (Preferred Alternative) Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge	Alternative 3 – Provide New Access from 180th Avenue
		floodplain functions and values from removal of two piers within the Pawnee River channel. Impacts to the 100-year floodplain would be local, short-term, minor, and adverse during construction.	
<b>Visitor Use and Experience</b>	The visitor experience would not change from current conditions. The continued presence of the roadway bridge would result in a parkwide long-term minor adverse effect.	The visitor experience would be improved by providing a more historically accurate entry to the historic core of the park, removing modern intrusion in the park, and improving visitor access. Impacts would be long-term, beneficial, and moderate. Traffic control during construction would result in a temporary inconvenience for visitors. Overall, Alternative 2 would provide a long-term moderate beneficial effect on the quality of the visitor experience in the park.	Changes to the visitor experience under Alternative 3 would be the same as Alternative 2.
<b>Archeological Resources</b>	Known archeological resources in the project area would not be affected because there would be no new disturbances.	With the implementation of monitoring and avoidance measures, Alternative 2 would have a local negligible to potentially minor adverse impact on archeological resources. However, under section 106, there would be no loss of significance or integrity and the national register eligibility of the site would be unaffected.	Monitoring and avoidance measures would be the same as Alternative 2. With the implementation of monitoring and avoidance measures, Alternative 3 would have a local negligible to potentially minor adverse impact on archeological resources.
<b>Cultural Landscape</b>	The continued presence of modern features in the historic core of the fort would be noticeable, but would not jeopardize the overall integrity of the resource. There would be a local long-term minor adverse effect to the cultural landscape.	Removing the roadway bridge and several other modern intrusions within the historic core of the fort would have a beneficial effect on the cultural landscape at the park.	Beneficial impacts to the cultural landscape would be the same as Alternative 2.
<b>Park Operations</b>	Under the no action alternative, there would be no change in current park operations or infrastructure. The existing roadway bridge would eventually need to be replaced or repaired, resulting in a parkwide short-term minor adverse impact on park operations.	Construction work would cause a minor temporary disruption in park operations and traffic. The project would create new park amenities that would require additional maintenance. Alternative 2 would reduce maintenance and improve the efficiency of park operations over the long term.	Impacts to park operations would be the same as Alternative 2.



# AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

## INTRODUCTION

This chapter provides a description of the resources potentially impacted by the alternatives and the likely environmental consequences. It is organized by impact topics that were derived from internal park and external public scoping. Impacts are evaluated based on context, duration, intensity, and whether they are direct, indirect, or cumulative.

## GENERAL METHODS

This section contains the environmental impacts, including direct and indirect effects, and their significance for each alternative. The analysis is based on the assumption that the mitigation measures and BMPs identified in the “Resource Protection Measures” section of this EA would be implemented for the preferred alternative. Overall, the Park Service based these impact analyses and conclusions on the review of existing literature and park studies, information provided by experts within the park, other agencies, professional judgment and park staff insights, and public input.

The following terms are used in the discussion of environmental consequences to assess the impact intensity threshold and the nature of impacts associated with each alternative.

*Type:* Impacts can be beneficial or adverse.

*Context:* Context is the setting within which an impact would occur, such as local (in the project area), parkwide (in Fort Larned National Historic Site), or regional (Pawnee County, Kansas).

*Impact Intensity:* Impact intensity is defined individually for each impact topic. There may be no impact, or adverse impacts may be negligible, minor, moderate, or major. Beneficial effects are those that have a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

*Duration:* Duration of impact is analyzed independently for each resource because impact duration is dependent on the resource being analyzed. Depending on the resource, impacts may last for the construction period, a single year or growing season, or longer. For purposes of this analysis, impact duration is described as short-term or long-term.

*Direct and Indirect Impacts:* Effects can be direct, indirect, or cumulative. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or farther away, but are still reasonably foreseeable. Direct and indirect impacts are considered in this analysis, but are not specified in the narratives. Cumulative effects are discussed starting on page 38.

*Threshold for Impact Analysis:* The duration and intensity of effects vary by resource. Therefore, the definitions for each impact topic are described separately. These definitions were formulated through the review of existing laws, policies, and guidelines; and with assistance from park staff and regional NPS and Washington office specialists. Impact intensity thresholds for negligible, minor, moderate, and major adverse effects are defined in a table for each resource topic.

## **CUMULATIVE EFFECTS**

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects.

### **Methods for Assessing Cumulative Effects**

Cumulative impacts were determined by combining the impacts of either the preferred or no action alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects near the park or the surrounding region that might contribute to cumulative impacts. The geographic scope of the analysis includes actions near the existing entrance road and roadway bridge, proposed road, parking lot, and pedestrian bridge, as well as other actions in the park or surrounding lands where overlapping resource impacts are possible. The temporal scope includes past actions in the project area from the 1860s when Fort Larned was established at its current location and reasonably foreseeable actions within a range of approximately 10 years in the future. The geographic area for evaluating cumulative effects is defined in the discussion for each resource.

Past, present, and reasonably foreseeable actions were then assessed in conjunction with the impacts of the alternatives to determine if they would have any added adverse or beneficial effects on a particular natural resource, park operation, or visitor use. The impact of reasonably foreseeable actions would vary for each of the resources. Cumulative effects are considered for each alternative and are presented in the environmental consequences discussion for each impact topic.

### **Past Actions**

Several past actions have influenced and affected the current conditions of the environment near the project area. Fort Larned was sold at auction to private owners in 1884. The fort was used as a private ranch from 1884 until its acquisition by the Park Service in 1966. During this period, the fort buildings and grounds were modified to serve as part of a working ranch. The blockhouse and several outbuildings were demolished and the barracks and several other buildings were converted to use as barns and machine shops. Farm roads,

silos, fences, and corrals also were constructed. Berms were constructed along the south bank of the Pawnee River to aid in flood control. The existing roadway bridge was constructed in 1963. A picnic area was constructed at the park entrance off Highway 156.

Following acquisition of Fort Larned by the Park Service, agricultural activities were discontinued and the Park Service began to restore the historic buildings. Since 1966, the Park Service has restored the complex of historic buildings to represent its military use in 1868. Nonhistoric buildings associated with ranching have been removed. Restoration of the historic buildings continued through the 1970s and 1980s, with the reconstruction of the building exteriors essentially complete by 1987. Other structures reconstructed in the 1980s include the blockhouse, flagpole, well houses, and privies. The gravel streets within the historic core of the fort were recently paved with a hard surface. The park also has made efforts to recreate the historical landscape around the fort by restoring native prairie.

The lands adjacent to and surrounding the park have been modified by human activities, including road and highway construction, agricultural activities, and modifications to the floodplain such as construction of reservoirs and detention structures upstream from the park in the Pawnee River watershed.

### **Current and Future Actions**

Several future actions are planned or are likely to occur in or near the project area. Future improvements on the south side of the Pawnee River and within the historic core of the fort will include making the rear entrances to the buildings accessible. Long-term plans also include future reconstruction of additional historic buildings such as the Sutler's store, hospital, and stables.

Park planning documents call for a future new visitor center to be located west of the Pawnee River, near the new parking area (NPS 1994). The City of Larned is developing plans to construct a multi-use trail from Larned to the fort.

No other reasonably foreseeable actions were identified in the vicinity of the project area that would potentially contribute to cumulative effects.

## **FLOODPLAINS**

### **Affected Environment**

The entire park is within the 100-year floodplain of the Pawnee River mapped by the Federal Emergency Management Agency in 1977. The floodplain is about 3 miles wide at the park, with its northern edge about 1,300 feet north of the northern park boundary and its southern edge about 10,000 feet south of the southern park boundary.

The Pawnee River has been modified since the early 20th century. Portions of the river have been diverted, diked, altered, and channelized for irrigation and other water uses and for flood control purposes. The river has undergone downcutting, narrowing, and straightening in the vicinity of the park (Martin 1992). The gradient of the Pawnee River is

very low; therefore, flood velocities would be very low (NPS 1994). Flash floods are virtually unknown and flood conditions take several days to develop. The U.S. Army Corps of Engineers estimated the 100-year flood elevation just upstream of the park to be about 2,042 feet above sea level.

The U.S. Geological Survey (USGS) maintains a streamflow gage on the Pawnee River about 8 miles upstream of the park (USGS 2010). At that location, the drainage area of the river is 2,148 square miles. Streamflow data have been collected at the gage since 1920. Average monthly streamflows range from 6 to 7 cubic feet per second (cfs) in December and January to 140 to 150 cfs in June and July, and the average annual flow is 58 cfs. The river has been known to have no flow during all months of the year. Annual peak flows are typically less than 5,000 cfs, but they have been above 5,000 cfs in 11 years between 1920 and 2009. Peak flows exceeding 10,000 cfs have been recorded twice. The largest recorded flow of 16,300 cfs occurred in July 1958; this was considered nearly 100-year magnitude (NPS 1994). The largest recent recorded peak streamflows were 9,780 cfs in July 1979 and 6,210 cfs in July 1993 (USGS 2010). The 1993 storm caused flooding in some parts of the park.

The Pawnee River's natural floodplain values have been altered by human activities, including more than 70 farm-related water retention structures that have been erected in the watershed upstream of Fort Larned within the past 40 years. The Pawnee Watershed District has erected two large flood control and recreation reservoirs on the Pawnee River upstream from the park. The effect of these structures on flooding at Fort Larned has not been quantified, but probably has reduced the magnitude of floods at the park (NPS 1994).

Within the park, the floodplain still has many natural values. The Pawnee River is deeply incised and the riverbanks are largely covered by a riparian forest that provides habitat for a variety of plant and wildlife species, and stabilizes the riverbanks. Outside of the riverbanks, the terrain is flat, with less-dense scattered riparian vegetation. The wooded riparian buffer on the Pawnee River within the park remains in a natural state without development except the location of the existing bridge. The existing road, parking area, and the historic structures adjacent to the Pawnee River have altered some of the natural floodplain, but the overall effect on the river's floodplain values is probably not measurable because the footprint of the park's structures are very small compared to the size of the Pawnee River floodplain.

### **Impact Intensity Threshold**

Floodplains are defined by NPS *Procedural Manual 77-2: Floodplain Management* as “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to temporary inundation by a regulatory flood.” EO 11988, “Floodplain Management” requires an examination of impacts to floodplains, potential risks involved in placing facilities within floodplains, and protecting floodplain values. The Park Service has adopted the policy of preserving floodplain values and minimizing potentially hazardous conditions associated with flooding (NPS *Procedural Manual 77-2: Floodplain Management*). The thresholds of change for the intensity of an impact are defined in Table 5.

**TABLE 5. FLOODPLAIN FUNCTIONS AND VALUES IMPACTS**

Impact Intensity	Intensity Description
Negligible	There would be very little change in the ability of a floodplain to convey floodwaters, or its values and functions. The proposed project would not contribute to flooding.
Minor	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local, although the changes would be barely measurable. The proposed project would not contribute to flooding. No mitigation would be needed.
Moderate	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. The proposed project could contribute to flooding. The impacts could be mitigated by modification of proposed facilities in floodplains.
Major	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and widespread. The proposed project would contribute to flooding. The impacts could not be mitigated by modification of proposed facilities in floodplains.
Beneficial	The effects would improve or restore natural floodplain functions, and reduce future flood damage and the risk to life and property in the project area. The intensity of the beneficial effect can be negligible, minor, moderate, or major.

Short-term impact—recovery usually takes less than one year; impacts would not be measurable or would be measurable only during the life of construction.

Long-term impact—recovery usually takes more than one year; impacts would be measurable during and after project construction.

## Environmental Consequences

### *No Action Alternative*

**Direct and Indirect Impacts.** The no action alternative would have no additional impacts on the Pawnee River floodplain. The risk of flooding would not change from existing conditions. The park, including the access road, roadway bridge, parking areas, and the areas proposed for construction of the extended road, new parking area, and new pedestrian bridge and walkway, would continue to be within the 100-year floodplain. The continuing presence of the roadway bridge and other park infrastructure in the floodplain would result in a local long-term negligible adverse impact to the floodplain.

**Cumulative Impacts.** Past regional actions in the Pawnee River watershed have influenced floodplain values, the potential for flooding, and flood hazards along the Pawnee River and tributary streams. The lands adjacent to and surrounding the park have been modified by human activities, including road and highway construction, agricultural activities, and modifications to the floodplain such as construction of reservoirs and detention structures upstream from the park in the Pawnee River watershed. Construction of the existing roadway bridge within the park also affected the floodplain. The planned future construction of a visitor center, reconstruction of additional historic buildings, and paving of gravel roads would be located within the floodplain. Past, present, and reasonably foreseeable future actions would have a regional long-term moderate adverse impact on the floodplain functions in the Pawnee River watershed. The impact of the above actions, in combination with the local long-term negligible adverse impacts of the no action alternative, would result in a regional long-term moderate adverse cumulative effect to floodplains.

**Conclusion.** The no action alternative would have no new adverse impacts on floodplains other than those associated with the existing location of the park and associated infrastructure within the Pawnee River 100-year floodplain. There would be no cumulative effects.

*Alternative 2 (Preferred Alternative)—Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge*

**Direct and Indirect Impacts.** The proposed project activities under the preferred alternative would occur within the 100-year floodplain of the Pawnee River. The new pedestrian bridge would be designed to pass the 50-year flood. The bridge abutments and decking would be within the 100-year floodplain. The new pedestrian bridge would have no structures within the active river channel, which would allow for unobstructed flow in the Pawnee River during normal flows. The extended access road, parking area, pedestrian walkway, and other new features proposed under the preferred alternative would increase the impervious surface area in the floodplain by about 1.6 acres, which could slightly increase runoff to the river during precipitation events. The increase in impervious surface would be partially offset by revegetating the removed parking areas and selected segments of roads. The removal of riparian vegetation would be minimized at the location of the new pedestrian bridge. Removing the existing roadway bridge over the Pawnee River would have a beneficial effect on the floodplain from removal of the piers within the active channel. After the existing bridge is demolished, the site would be graded to match the natural contours and revegetated. Overall, none of the proposed project activities within the 100-year floodplain would substantially affect floodplain functions, restrict channel capacity, or increase the risk of flooding. Because the extended access road, new parking area, new pedestrian bridge and walkway would be in the 100-year floodplain, these features could potentially be damaged by a flood. Because flash floods are virtually unknown on this part of the Pawnee River and flood conditions take several days to develop, there would be ample warning time to implement the Emergency Operations Plan for the park, which includes an evacuation plan in case of flooding.

Natural drainage and natural contours would be preserved to the extent practicable. After the traffic bridge is removed, the site would be graded to match the natural contours of the river channel. Removal of riparian vegetation would be minimized. Disturbed areas would be revegetated as soon as practicable following construction. Construction of structures, such as piers within the channel that would alter or impede the natural flow of the river and flood flows would be minimized. Structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60). Any work conducted in the Pawnee River would occur during low streamflow. Construction would be halted if high precipitation or high flows occur.

Construction of the access road extension, parking area, pedestrian bridge and walkway, and other new features within the 100-year floodplain would result in a local long-term minor adverse impact to floodplain functions by increasing impervious surface. These features would be designed not to impede flows or increase the risk of flooding. Demolition of the existing roadway bridge would result in a local long-term minor benefit to floodplain functions and values from removal of two piers within the Pawnee River channel. In accordance with EO 11988, "Floodplain Management" and DO - 77-2: *Floodplain Management*, the Park Service has reviewed the flood hazards for the preferred alternative and prepared a Floodplain Statement of Finding (SOF), which is found in Appendix B.

**Cumulative Impacts.** Past regional actions in the Pawnee River watershed have influenced floodplain values, the potential for flooding, and flood hazards along the Pawnee River and tributary streams. The lands adjacent to and surrounding the park have been modified by human activities, including road and highway construction, agricultural activities, and modifications to the floodplain such as construction of reservoirs and detention structures upstream from the park in the Pawnee River watershed. Construction of the existing roadway bridge within the park also affected the floodplain. The planned future construction of a visitor center, reconstruction of additional historic buildings, and paving of gravel roads would be located within the floodplain. Past, present, and reasonably foreseeable future actions would have a regional long-term moderate adverse impact on the floodplain functions in the Pawnee River watershed. The impact of the above actions, in combination with the local long-term minor adverse and beneficial effects of the preferred alternative, would result in a regional long-term moderate adverse cumulative effect to floodplains.

**Conclusion.** Construction of the access road extension, parking area, pedestrian bridge and walkway, and other new features within the 100-year floodplain would result in a local long-term minor adverse impact to floodplain functions and values. Demolition of the existing roadway bridge would result in a local long-term minor benefit to floodplain functions and values from removal of two piers within the Pawnee River channel. Cumulative effects would be regional, long-term, moderate, and adverse with a relatively small adverse contribution from the preferred alternative.

### *Alternative 3—Provide New Access from 180th Avenue*

**Direct and Indirect Impacts.** The proposed project activities under Alternative 3 also would occur within the 100-year floodplain of the Pawnee River. The new pedestrian bridge would be the same as under the preferred alternative and would be designed to pass the 50-year flood. The bridge abutments and decking would be within the 100-year floodplain. The new pedestrian bridge would have no structures within the active river channel, which would allow for unobstructed flow in the Pawnee River during normal flows. As with the preferred alternative, the new features proposed under Alternative 3 would increase the impervious surface area in the floodplain. Impervious surface area would increase by about 2.1 acres under Alternative 3, which could slightly increase runoff to the river during precipitation events. The increase in impervious surface would be partially offset by revegetating the removed parking areas and selected segments of roads. The removal of riparian vegetation would be minimized at the location of the new pedestrian bridge. Removing the existing roadway bridge over the Pawnee River would have a beneficial effect on the floodplain from removal of the piers within the active channel. After the existing bridge is demolished, the site would be graded to match the natural contours and revegetated. Overall, none of the proposed project activities within the 100-year floodplain would substantially affect floodplain functions, restrict channel capacity, or increase the risk of flooding. Because the new access road, new parking area, new pedestrian bridge and walkway would be in the 100-year floodplain, these features could potentially be damaged by a flood. Because flash floods are virtually unknown on this part of the Pawnee River and flood conditions take several days to develop, there would be ample warning time to implement a flood emergency plan at the park. An Emergency Operations Plan, including an evacuation plan, is on file at the park.

Floodplain mitigation measures would be the same as under the preferred alternative. Natural drainage and natural contours would be preserved to the extent practicable. After the traffic bridge is removed, the site would be graded to match the natural contours of the river channel. Removal of riparian vegetation would be minimized. Disturbed areas would be revegetated as soon as practicable following construction. Construction of structures, such as piers within the channel that would alter or impede the natural flow of the river and flood flows, would be minimized. Structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60). Any work conducted in the Pawnee River would occur during low streamflow. Construction would be halted if high precipitation or high flows occur.

Construction of the new access road from 180th Avenue, parking area, pedestrian bridge and walkway, and other new features within the 100-year floodplain under Alternative 3 would result in a local long-term minor adverse impact to floodplain functions by increasing impervious surface. These features would be designed not to impede flows or increase the risk of flooding. Demolition of the existing roadway bridge would result in a local long-term minor benefit to floodplain functions and values from removal of two piers within the Pawnee River channel.

**Cumulative Impacts.** Past regional actions in the Pawnee River watershed have influenced floodplain values, the potential for flooding, and flood hazards along the Pawnee River and tributary streams. The lands adjacent to and surrounding the park have been modified by human activities, including road and highway construction, agricultural activities, and modifications to the floodplain such as construction of reservoirs and detention structures upstream from the park in the Pawnee River watershed. Construction of the existing roadway bridge within the park also affected the floodplain. The planned future construction of a visitor center, reconstruction of additional historic buildings, and paving of gravel roads would be within the floodplain. Past, present, and reasonably foreseeable future actions would have a regional long-term moderate adverse impact on the floodplain functions in the Pawnee River watershed. The impact of the above actions, in combination with the local long-term minor adverse and beneficial effects of Alternative 3, would result in a regional long-term moderate adverse cumulative effect to floodplains.

**Conclusion.** Construction of the access road from 180th Avenue, parking area, pedestrian bridge and walkway, and other new features within the 100-year floodplain would result in a local long-term minor adverse impact to floodplain functions and values. Demolition of the existing roadway bridge would result in a local long-term minor benefit to floodplain functions and values from removal of two piers within the Pawnee River channel. Cumulative effects would be regional, long-term, moderate, and adverse with a relatively small adverse contribution from Alternative 3.

## VISITOR USE AND EXPERIENCE

### Affected Environment

The park hosted 27,443 visitors in 2009 (NPS 2010). There has been a slight decline in visitation to the park since 1998. Visitation typically is lowest in the winter, increases in the

spring, and peaks during the summer months, with most visitors coming in May, June, and July (NPS 2009). A second peak occurs in the fall and is largely attributable to school groups. Throughout the year, the heaviest visitation occurs on weekends (NPS 2009). The highest visitation levels occur on days when special events such as living history displays and military reenactments are held. More than 50% of visitors live in Kansas and approximately 3% live outside the United States (NPS 2009). The typical visitor stay lasts about two hours and the main visitor activity is touring the historic buildings (NPS 2009).

The park offers a rare visitor experience centered on interpretation of historical resources. Visitors have the opportunity to experience an important period of American history by touring the restored historic quadrangle and historic buildings. A visitor center is in a portion of one of the historic buildings and contains a lobby, information desk, bookstore, exhibits, and theater. The park also has a 1-mile history/nature trail, several wayside exhibits, and a picnic area.

Visitors access the park from Highway 156 and continue south along the entrance road to the existing parking area. Visitors then walk across the existing roadway bridge to the historic core of the park. Visitors with disabilities are currently able to drive across the bridge and park in an accessible parking area located in the historic core of the fort. The current visitor experience at the park is compromised by the visual intrusion of the existing deteriorated roadway bridge and the lack of a historically accurate approach to the park. In addition, occasional vehicle use of the bridge is a potential safety hazard for pedestrians using the bridge.

### Impact Intensity Threshold

NPS *Management Policies 2006* state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks, and that the Park Service is committed to providing appropriate high-quality opportunities for visitors to enjoy the parks. The park provides a diversity of opportunities for visitor use and experience and the potential for change in visitor experience was evaluated. The thresholds of change for the intensity of an impact to visitor use and experience are described in Table 6.

**TABLE 6. VISITOR USE AND EXPERIENCE IMPACT AND INTENSITY THRESHOLDS**

Impact Intensity	Intensity Description
Negligible	Changes in visitor use and experience would be barely perceptible. The visitor would not likely be aware of the effects associated with the action.
Minor	The visitor might be aware of the effects associated with the action, but would not likely express an opinion about it.
Moderate	Changes in visitor use and experience would be readily apparent. The visitor would be aware of the effects associated with the action and would likely express an opinion about the changes.
Major	Changes in visitor use and experience would be readily apparent and severely adverse. The visitor would be aware of the effects associated with the action and would likely express a strong opinion about the changes.
Beneficial	The effects would improve or increase visitor use opportunities and/or experience or would reduce features that impede visitor use and/or experience in the project area. The intensity of the beneficial effect can be negligible, minor, moderate, or major.

Short-term impact—occurs only during project construction.

Long-term impact—continues after project construction is complete.

## Environmental Consequences

### *No Action Alternative*

**Direct and Indirect Impacts of the Alternative.** Under the no action alternative, the visitor experience would not change from current conditions. Visitors would continue to access the park by driving along the entrance road to the existing parking area north of the roadway bridge. Visitors would continue to walk across the deteriorating roadway bridge to reach the historic core of the park. The roadway bridge would continue to be an intrusion into the historical area of the park. Safety issues created by visitors walking across the bridge, which is occasionally used by vehicles, would continue. Although there would be no change from current conditions, the continued presence of the roadway bridge would result in a parkwide long-term minor adverse effect on visitor use and experience.

**Cumulative Impacts.** Past actions have resulted in improved opportunities for visitors to enjoy the park and tour the historic buildings at the site. Construction of the picnic area and access road allowed visitors to access and enjoy the park. Past restoration of the historic buildings and fort grounds has greatly enhanced the visitor experience. Planned future actions such as paving gravel roads, making the rear entrances to the buildings accessible, constructing a new visitor center, and reconstructing additional historic structures would further improve the visitor experience. Past, present, and reasonably foreseeable future projects would have a long-term beneficial effect on the visitor experience. The overall cumulative effects to the visitor experience from the no action alternative in combination with past, present, and reasonably foreseeable future actions would be park-wide, long-term, and beneficial, with a relatively small adverse effect from the no action alternative.

**Conclusion.** The no action alternative would have parkwide long-term minor adverse effects on visitor use and experience from the continued presence of the deteriorated roadway bridge. Cumulative effects would be park-wide, long-term, and beneficial with a relatively small adverse contribution from the no action alternative.

### *Alternative 2 (Preferred Alternative)—Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge*

**Direct and Indirect Impacts of the Alternative.** The extended access road, new parking area, and new pedestrian bridge and walkway would improve the visitor experience by providing a safe, accessible, and historically accurate entry to the historic core of the park while providing expanded parking. The new parking area would allow easy entry, exit, and parking space for larger recreational vehicles, buses, and trailers. The new parking area and pedestrian bridge also would improve visitor access. The new parking area, pedestrian bridge, and walkway would be accessible to visitors with disabilities. The visitor experience would be improved by removing the existing roadway bridge and parking areas, which are currently intrusions into the historic core of the park. Removing the roadway bridge would improve visitor safety by eliminating conflicts between pedestrians and vehicles using the bridge. Paving the picnic area loop road and removing unnecessary roads within the park would further enhance the visitor experience. The impacts would be local, long-term, beneficial, and moderate.

A local short-term minor adverse effect on visitor use and experience would occur during construction. Visitors would still be able to access the park during construction because the existing roadway bridge and parking facilities would not be removed until the new access road extension, parking area, and pedestrian bridge were complete. Night work is not anticipated, but may occur for short periods where necessary to minimize impacts to visitors and employees. Traffic control measures would be established, such as temporary single-lane closures for a few minutes, as required when equipment is staged or delivered. Traffic control measures during construction and would result in a temporary inconvenience for some visitors during construction.

Overall, the proposed access road extension, parking area, pedestrian bridge, and associated features would provide a long-term moderate beneficial effect on the quality of the visitor use and experience in the park.

**Cumulative Impacts.** Past actions have resulted in improved opportunities for visitors to enjoy the park and tour the historic buildings at the site. Construction of the picnic area and access road allowed visitors to access and enjoy the park. Past restoration of the historic buildings and fort grounds has greatly enhanced the visitor experience. Planned future actions such as paving gravel roads, making the rear entrances to the buildings accessible, constructing a new visitor center, and reconstructing additional historic structures would further improve the visitor experience. Past, present, and reasonably foreseeable future projects would have a long-term beneficial effect on the visitor experience. The overall cumulative effects to the visitor experience from the preferred alternative in combination with past, present, and reasonably foreseeable future actions would be park-wide, long-term, and beneficial, with a beneficial contribution from the preferred alternative.

**Conclusion.** The preferred alternative would improve the visitor experience and visitor access to the park. There would be a parkwide long-term moderate beneficial effect to visitor use and the quality of the visitor experience. The effect on visitor use and experience during construction would be local, short-term, minor, and adverse. Cumulative impacts would be parkwide, long-term, beneficial, and moderate.

### *Alternative 3—Provide New Access from 180th Avenue*

**Direct and Indirect Impacts.** Impacts to visitor use and experience would be similar to the preferred alternative. The main difference would be that visitors would approach the new parking area from 180th Avenue instead of Highway 156. The new access from 180th Avenue, new parking area, and new pedestrian bridge and walkway would improve the visitor experience by providing a safe, accessible, and historically accurate entry to the historic core of the park while providing expanded parking. The new parking area would allow easy entry, exit, and parking space for larger recreational vehicles, buses, and trailers. The new parking area and pedestrian bridge also would improve visitor access. The new parking area, pedestrian bridge, and walkway would be accessible to visitors with disabilities. The visitor experience would be improved by removing the existing roadway bridge and parking areas, which are currently intrusions into the historic core of the park. Removing the roadway bridge would improve visitor safety by eliminating conflicts between pedestrians and vehicles using the bridge. Paving the picnic area loop road and removing unnecessary roads within the

park would further enhance the visitor experience. The impacts would be local, long-term, moderate, and beneficial.

A local short-term minor adverse effect on visitor use and experience would occur during construction. Visitors would still be able to access the park during construction because the existing roadway bridge and parking facilities would not be removed until the new access road from 180th Avenue, parking area, and pedestrian bridge were complete. Traffic control measures would be established during construction and would result in a temporary inconvenience for some visitors during construction.

Overall, Alternative 3 would provide a long-term moderate beneficial effect on the quality of the visitor use and experience in the park.

**Cumulative Impacts.** Past actions have resulted in improved opportunities for visitors to enjoy the park and tour the historic buildings at the site. Construction of the picnic area and access road allowed visitors to access and enjoy the park. Past restoration of the historic buildings and fort grounds has greatly enhanced the visitor experience. Planned future actions such as paving gravel roads, making the rear entrances to the buildings accessible, constructing a new visitor center, and reconstructing additional historic structures would further improve the visitor experience. Past, present, and reasonably foreseeable future projects would have a long-term beneficial effect on the visitor experience. The overall cumulative effects to the visitor experience from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be parkwide, long-term, and beneficial, with a beneficial contribution from Alternative 3.

**Conclusion.** Alternative 3 would improve the visitor experience and visitor access to the park. There would be a parkwide long-term moderate beneficial effect to visitor use and the quality of the visitor experience. The effect on visitor use and experience during construction would be local, short-term, minor, and adverse. Cumulative impacts would be parkwide, long-term, beneficial, and moderate.

## ARCHEOLOGICAL RESOURCES

### Affected Environment

Approximately 50 known archeological sites dating from the active period of the fort's operation in the 1860s and 1870s have been identified. Most of these features are subsurface remnants of a wide variety of structures such as support buildings. The locations of these features were identified by NPS researchers from 1968 to 1975 (NPS 1994). More than 80,000 historic and nonhistoric artifacts were recovered during this time (NPS 1978). Archeological sites dating from the 1860s and 1870s include storehouses, barracks, laundress quarters, hospital, privies, meathouse, storehouse, carpenter and blacksmith shop, icehouse, sutler's store, bridge dating the 1860s, new sutler's store, officers' quarters, field entrenchments, teamster quarters, corrals, guardhouses, hospital steward's quarters, stables, bake shop, two cemeteries, mail station, drainage system, dumps, and gardens. Most of these features are on the east side of the Pawnee River, outside of the project area. The surrounding fields also contain remnants of the Santa Fe Trail and military trails from Fort Larned to other posts. The remnants of the Santa Fe Trail occur west of the Pawnee River, within the project area.

Recent geophysical surveys have identified a location where the historic trails converge on the north side of the Pawnee River (Devore and LeBeau 2011). The trail convergence site is near the location where the proposed pedestrian trail and the new bridge would enter the proposed new parking area.

### Impact Intensity Threshold

Impact intensity under NEPA corresponds with effects under section 106 of the NHPA of 1966, as amended (16 USC 470, et seq.) and its implementing regulations under 36 CFR 800. Section 106 requires all federal agencies to consider the effects of federal actions on historic properties eligible for or listed in the national register. In order for an archeological site to be listed in the national register, it must be associated with an important historic event or person(s), embody distinctive characteristics or qualities of workmanship, or have the potential to provide information significant to history or prehistory. The thresholds of change for the intensity of an impact on archeological sites are defined in Table 7.

**TABLE 7. ARCHEOLOGICAL RESOURCES IMPACT AND INTENSITY THRESHOLDS**

Impact Intensity	Intensity Description
Negligible	Impacts would be at the lowest level of detection - barely measurable and with no perceptible consequences.
Minor	Disturbance of a site(s) results in little, if any, loss of significance or integrity and the National Register eligibility of the site(s) is unaffected.
Moderate	Disturbance of a site(s) does not diminish the significance or integrity of the site(s) to the extent that its National Register eligibility is jeopardized.
Major	Disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it is no longer eligible to be listed in the National Register.

### Environmental Consequences

#### *No Action Alternative*

**Direct and Indirect Impacts.** Known archeological resources in the project area would not be affected under the no action alternative because there would be no new disturbances.

**Cumulative Impacts.** Future improvements to the park such as construction of a new visitor center, paving streets, and making rear building entrances accessible would be implemented with careful monitoring to avoid and minimize impacts to archeological resources. Although other past, present, and reasonably foreseeable future actions may affect archeological resources, the no action alternative would not affect archeological resources and, therefore, would not contribute to the effects of other actions. Consequently, there would be no cumulative impacts under the no action alternative.

**Conclusion.** Archeological resources would not be affected under the no action alternative. There would be no cumulative impacts.

***Alternative 2 (Preferred Alternative)—Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge***

**Direct and Indirect Impacts.** Under the preferred alternative, construction of the access road extension, new parking area, and new pedestrian bridge and walkway could potentially impact several remnants of the Santa Fe Trail and other military trails in the field west of the Pawnee River, and buried features related to Fort Larned. Ground-disturbing activities related to construction would have the potential to impact the trail remnants or other unknown archeological resources. Known resources would be avoided, and monitoring measures by a professional archeologist would be used to reduce the potential for inadvertent impacts to potential buried cultural features identified during geophysical surveys. Road construction equipment would remove soil in layers, especially the plow zone, to allow for the identification during monitoring of potential trail segments identified during geophysical surveys. If trail remnants or other archeological resources are discovered during construction, all construction activities would cease until the archeologist assesses the discovery for its nature, extent, and significance. Consultation with the Kansas SHPO would be required to determine significance and appropriate mitigation measures. If, after consultation, the discovery is found to be significant under section 106, an appropriate treatment plan would be devised and implemented prior to the continuation of project construction in the area of the discovery.

A separate assessment of effect document has been prepared in compliance with section 106 of the NHPA in consultation with the Kansas SHPO. The Park Service has recommended a finding of no adverse effect on cultural resources based on the results of surveys conducted by the NPS Midwest Archeological Center (DeVore and LeBeau 2011) and with the implementation of construction monitoring. With the implementation of the mitigation measures described, the preferred alternative would have a local negligible to minor adverse impact on archeological resources.

**Cumulative Impacts.** Past projects, such as construction of the existing roadway bridge, demolition of buildings and the original bridge at the historic crossing site, and past road construction have had minor adverse impacts on archeological resources. Future improvements to the park such as construction of a new visitor center, paving streets, and making rear building entrances accessible would be implemented with careful monitoring to avoid and minimize impacts to archeological resources. Overall, impacts to archeological resources from past, present, and future projects would be parkwide, minor, and adverse.

As described above, implementation of the preferred alternative would result in local negligible to minor adverse impacts on archeological resources. The overall cumulative effects to archeological resources from the preferred alternative in combination with past, present, and reasonably foreseeable future actions would be park-wide, minor, and adverse, with a relatively small adverse impact from the preferred alternative.

**Conclusion.** The preferred alternative would have parkwide negligible to minor adverse impacts on archeological resources. However, under section 106, there would be no loss of significance or integrity and the national register eligibility of the site would be unaffected. Cumulative impacts would be parkwide, minor and adverse, with a relatively small adverse impact from the preferred alternative.

*Alternative 3—Provide New Access from 180th Avenue*

**Direct and Indirect Impacts.** Under Alternative 3, construction of the new access road from 180th Avenue, new maintenance road, new parking area, and new pedestrian bridge and walkway could potentially affect several remnants of the Santa Fe Trail and other military trails in the field west of the Pawnee River. Any excavation or ground-disturbing activities related to construction would have the potential to reveal and disturb the trail remnants or unknown archeological resources. Monitoring and mitigation measures under Alternative 3 would be the same as under the preferred alternative. Known resources would be avoided and a professional archeologist would monitor construction to minimize potential harm to known and potential unknown resources. Road construction equipment would remove soil in layers, especially the plow zone, to allow visual inspection for trail segment remnants. If trail remnants or other archeological resources were discovered during construction, all construction activities would cease until the archeologist assesses the resource and determines the appropriate manner in which to proceed. With the implementation mitigation measures, Alternative 3 would have a local negligible to minor adverse impact on archeological resources.

**Cumulative Impacts.** Past projects, such as construction of the existing roadway bridge, demolition of buildings and the original bridge at the historic crossing site, and past road construction have had minor adverse impacts on archeological resources. Future improvements to the park such as construction of a new visitor center, paving streets, and making rear building entrances accessible would be implemented with careful monitoring to avoid and minimize impacts to archeological resources. Overall, impacts to archeological resources from past, present, and future projects would be parkwide, minor, and adverse.

As described above, implementation of Alternative 3 would result in local negligible to potentially minor adverse impacts on archeological resources. The overall cumulative effects to archeological resources from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be parkwide, minor, and adverse, with a relatively small adverse impact from the Alternative 3.

**Conclusion.** Alternative 3 would have parkwide negligible to potentially minor adverse impacts on archeological resources. Cumulative impacts would be parkwide, minor, and adverse, with a relatively small adverse impact from Alternative 3.

## **CULTURAL LANDSCAPE**

### **Affected Environment**

According to DO – 28: *Cultural Resource Management Guideline* (page 87), a cultural landscape is:

...a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The

character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.

Fort Larned was designated a National Historic Landmark in 1961 and was acquired by the Park Service in 1966. The includes two units—the historic military fort on the banks of the Pawnee River and a 44-acre site 6 miles south of the fort that contains remnants of ruts from the Santa Fe Trail. . The fort was established in 1860 at a strategic bend in the Pawnee River and played an important role in protecting travel along the Santa Fe Trail. The fort provided guards to protect mail stages and wagon trains on the Santa Fe Trail. The existing stone buildings were constructed from 1865 to 1868.

Fort Larned also was the site of an agency of the Indian Bureau for most of the 1860s. The agency was responsible for distributing annuities to the Plains Indian tribes in payment for maintaining peace and remaining on reservations. Indian tribes including the Cheyenne, Arapahoe, Kiowa, and Comanche camped near the fort when they came to collect their annuities.

Fort Larned is significant not only for the role it played in American history, but also because it still has structures dating from the historic period (NPS 1994). Nine existing historic buildings arranged around a central quadrangle and several reconstructed structures form the core of the historic site. The existing historic buildings are two barracks buildings (Figure 11), shops building (Figure 12), new commissary storehouse, old commissary storehouse, quartermaster storehouse, two officers' quarters buildings, and the commanding officer's quarters (Figure 13). The nine surviving historic buildings comprise all but one of the original 10 stone structures that defined the parade ground and are good examples of American military post architecture during the 1860s. These structures are important resources and their presence contributes to the high integrity and historic character of the cultural landscape (NPS 1994). Additional historic features include a blockhouse and sweatbox reconstructed in 1988, a flagstaff reconstructed in 1983, and a parade ground reconstructed in 1983 (Quinn Evans Architects et al. 1999). Several reconstructed outbuildings such as well houses and privies are present. The remains of many other historic structures on the site survive as archeological resources. These archeological remains also contribute to the fort's significance. In general, most of the historic buildings are in good condition, although many have extensive graffiti, some of which dates from the fort's historic period. Remnants of the Santa Fe Trail and other military trails survive as archeological features on the west side of the Pawnee River, potentially within the construction area for the extended access road and new parking area, as described above in the "Archeological Resources" section.

**FIGURE 11. BARRACKS BUILDINGS**



**FIGURE 12. SHOPS BUILDING**



**FIGURE 13. COMMANDING OFFICER’S QUARTERS**



Currently, the cultural landscape at Fort Larned is compromised by the presence of modern intrusions within the historic core of the fort including the roadway bridge, core area parking lot, and nonhistoric roads within the core area.

**Impact Intensity Threshold**

Cultural landscapes are the result of the long interaction between people and the land, and the influence of human beliefs and actions over time on the natural landscape. The thresholds of change for the intensity of an impact on the cultural landscape are defined in Table 8.

**TABLE 8. CULTURAL LANDSCAPE IMPACT AND INTENSITY THRESHOLDS**

Impact Intensity	Intensity Description
Negligible	Impact is at the lowest levels of detection - barely perceptible and not measurable.
Minor	Preservation of character defining patterns and features in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes.
Moderate	Rehabilitation of a landscape or its patterns and features in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes.
Major	Restoration of a landscape or its patterns and features in accordance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes.

**Environmental Consequences**

*No Action Alternative*

**Direct and Indirect Impacts.** Under the no action alternative, removal of the roadway bridge and other modern intrusions within the historic core of the fort would not occur. The continued presence of these features would be noticeable, but would not jeopardize the

overall integrity of the resource. The no action alternative would result in a local minor adverse impact to the cultural landscape.

**Cumulative Impacts.** Past actions such as use of the fort as a ranch, construction of the roadway bridge, construction of berms for flood control, construction of the picnic area, and construction of nearby roads have altered the cultural landscape. Restoration and reconstruction of historic buildings has helped to restore the cultural landscape to its appearance during the fort's active period. Planned future projects such as paving gravel roads, making rear entrances accessible, and constructing a new visitor center would further alter the cultural landscape. Any future construction, additions, or alterations to the cultural landscape in the park would be undertaken in a manner that does not diminish character-defining features of the cultural landscape. Such undertakings would be compatible with the massing, scale, and other qualities contributing to the National Historic Site designation of Fort Larned. Past, present, and reasonably foreseeable future projects would result in minor adverse and moderate beneficial impacts to the cultural landscape.

As described above, implementation of the no action alternative would result a local minor adverse impact to the cultural landscape. The impacts of this alternative, in combination with the minor adverse and moderate beneficial impacts of other past, present, and reasonably foreseeable future actions, would result in a long-term moderate beneficial cumulative effect, with a relatively small adverse contribution from the no action alternative.

**Conclusions.** The no action alternative would have a local minor impact on the cultural landscape from the continued presence of several modern intrusions within the historic core of the fort. Cumulative impacts would be parkwide, minor adverse and moderate beneficial, with a relatively small adverse contribution from the no action alternative.

*Alternative 2 (Preferred Alternative)—Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge*

**Direct and Indirect Impacts.** The preferred alternative would improve the historic setting by removing the existing modern roadway bridge and constructing a new bridge in its general historical location. The roadway bridge crossing site, parking lots, and abandoned road segments would be restored with native vegetation following removal. The extended access road and new parking area would introduce nonhistoric elements into the landscape, but these features would be on the west side of the Pawnee River and would be visually screened from the historic core of the fort. Impacts to the Santa Fe Trail remnants west of the Pawnee River would be local, negligible to minor, and adverse, and are described under "Archeological Resources." Overall, the preferred alternative would have a local moderate beneficial effect to the cultural landscape and contributing historic elements.

**Cumulative Impacts.** Past actions such as use of the fort as a ranch, construction of the roadway bridge, construction of berms for flood control, construction of the picnic area, and construction of nearby roads have altered the cultural landscape. Restoration and reconstruction of historic buildings has helped to restore the cultural landscape to its appearance during the fort's active period. Planned future projects such as paving gravel paths, making rear entrances accessible, and constructing a new visitor center would further alter the cultural landscape. Any future construction, additions, or alterations to the cultural

landscape in the park would be undertaken in a manner that does not diminish character-defining features of the cultural landscape. Such undertakings would be compatible with the massing, scale, and other qualities contributing to the National Historic Site designation of Fort Larned. Overall, past, present, and reasonably foreseeable future projects would result in minor to moderate beneficial impacts to the cultural landscape.

As described above, implementation of the preferred alternative would result in moderate beneficial impacts to the cultural landscape. The impacts of this alternative, in combination with the minor to moderate beneficial impacts of other past, present, and reasonably foreseeable future actions, would result in a moderate beneficial cumulative effect. The beneficial effects of the preferred alternative would be a relatively large component of the beneficial cumulative impact.

**Conclusions.** The preferred alternative would have a local moderate beneficial effect on the cultural landscape from relocating the bridge to its general historical location and removing several modern intrusions within the historic core of the fort. Cumulative impacts would be parkwide, minor to moderate beneficial, with a relatively large beneficial contribution from the preferred alternative.

### *Alternative 3—Provide New Access from 180th Avenue*

**Direct and Indirect Impacts.** Impacts to the cultural landscape under Alternative 3 would be similar to the preferred alternative. Alternative 3 would improve the historic setting by removing the existing modern roadway bridge and constructing a new bridge in its general historical location. The roadway bridge crossing site, parking lots, and abandoned road segments would be restored with native vegetation following removal. The new access road from 180th Avenue, new service road, and new parking area would introduce nonhistoric elements into the landscape, but these features would be on the west side of the Pawnee River and would be visually screened from the historic core of the fort. Impacts to the Santa Fe Trail remnants west of the Pawnee River would be local, negligible to minor, and adverse, and are described under “Archeological Resources.” Overall, the Alternative 3 would have a local moderate beneficial effect to the cultural landscape and contributing historic elements.

**Cumulative Impacts.** Past actions such as use of the fort as a ranch, construction of the roadway bridge, construction of berms for flood control, construction of the picnic area, and construction of nearby roads have altered the cultural landscape. Restoration and reconstruction of historic buildings has helped to restore the cultural landscape to its appearance during the fort’s active period. Planned future projects such as paving gravel paths, making rear entrances accessible, and constructing a new visitor center would further alter the cultural landscape. Any future construction, additions, or alterations to the cultural landscape in the park would be undertaken in a manner that does not diminish character-defining features of the cultural landscape. Such undertakings would be compatible with the massing, scale, and other qualities contributing to the National Historic Site designation of Fort Larned. Overall, past, present, and reasonably foreseeable future projects would result in minor to moderate beneficial impacts to the cultural landscape.

As described above, implementation of Alternative 3 would result in moderate beneficial impacts to the cultural landscape. The impacts of this alternative in combination with the

minor to moderate beneficial impacts of other past, present, and reasonably foreseeable future actions would result in a moderate beneficial cumulative effect. The beneficial effects of Alternative 3 would be a relatively large component of the beneficial cumulative impact.

**Conclusions.** Alternative 3 would have a local moderate beneficial effect on the cultural landscape from relocating the bridge to its general historical location and removing several modern intrusions within the historic core of the fort. Cumulative impacts would be parkwide, minor to moderate, and beneficial with a relatively large beneficial contribution from Alternative 3.

## PARK OPERATIONS

### Affected Environment

Ongoing park operations have strived to maintain park physical, natural, and cultural resources while interpreting park cultural resources for the enjoyment, understanding, and appreciation of park visitors. Park staff are responsible for the day-to-day maintenance of the infrastructure in the park. The park buildings, roads, and structures are maintained to provide a safe and pleasant environment for park visitors and staff. The lawns in the parade grounds and bordering the access road and parking areas are regularly mowed to maintain a park-like appearance. The existing buildings, parking area, and picnic area are maintained and repaired as needed. The visitor information desk is manned by park staff. The existing roadway bridge adversely affects park operations because it is in a deteriorated state and will eventually require extensive maintenance or replacement.

### Impact Intensity Threshold

Park operations, for the purposes of this EA, refers to the quality and effectiveness of the infrastructure, and the ability of park staff to maintain the infrastructure used in the operation of the park to protect and preserve vital resources and provide for a high-quality visitor experience. Facilities included in the analysis are the roadway bridge, access road, parking area, and any areas potentially affected by the project. In addition, park operations include the ability of park staff to engage with park visitors and provide them with the information necessary to protect park resources. The thresholds of change for the intensity of an impact to park operations are described in Table 9.

**TABLE 9. PARK OPERATIONS IMPACT AND INTENSITY THRESHOLDS**

Impact Intensity	Intensity Description
Negligible	The effects would be at low levels of detection and would not have appreciable effects on park operations.
Minor	The effects would be detectable and would be of a magnitude that would not have appreciable effects on park operations. If mitigation is needed to offset adverse effects, it would be simple and likely successful.
Moderate	The effects would be readily apparent and would result in a change in park operations that would be noticeable to park staff and the public. Mitigation measures would be necessary to offset adverse effects and would likely be successful.

Impact Intensity	Intensity Description
Major	The effects would be readily apparent, would result in a substantial change in park operations in a manner noticeable to staff and the public, and would be markedly different from existing operations. Mitigation measures to offset adverse effects would be needed and extensive, and success could not be guaranteed.
Beneficial	The effects would improve the quality and effectiveness of park infrastructure and the ability of park staff to maintain the infrastructure used in the operation of the park to protect and preserve vital resources and provide for a high-quality visitor experience. The intensity of the beneficial effect can be negligible, minor, moderate, or major.

Short-term impact—effects lasting for the duration of the treatment action.

Long-term impact—effects continuing after the treatment action.

## Environmental Consequences

### *No Action Alternative*

**Direct and Indirect Impacts of the Alternative.** Under the no action alternative, there would be no change in current park operations or infrastructure. The existing deteriorated roadway bridge would continue to be used to access the park and would remain in its current condition. Although there would be no immediate effect on park operations, the bridge would eventually need to be replaced or repaired, resulting in a parkwide long-term minor adverse impact on park operations.

**Cumulative Impacts.** Past actions such as restoration and reconstruction of historic buildings have had a beneficial effect on park operations. Planned future actions such as paving gravel streets within the historic core of the fort would improve park operations by reducing maintenance requirements. The planned future construction of a new visitor center west of the Pawnee River would greatly enhance park operations by providing upgraded visitor contact facilities and modern accommodations for park staff. Past, present, and reasonably foreseeable future projects would result in parkwide long-term moderate beneficial impacts to park operations, with a relatively small adverse contribution from the no action alternative.

**Conclusion.** The no action alternative would have a parkwide long-term minor adverse impact on park operations. Park operations would eventually be affected by the need to replace or repair the deteriorating roadway bridge. Cumulative effects to park operations would be parkwide, long-term, moderate, and beneficial, with a relatively small adverse contribution from the no action alternative.

### *Alternative 2 (Preferred Alternative)—Construct New Pedestrian Bridge with Parking Facilities to Replace Failing Roadway Bridge*

**Direct and Indirect Impacts of the Alternative.** Extending the entrance road by approximately 0.4 mile and constructing a new parking area and pedestrian bridge would create new park amenities that would require additional maintenance. Paving the loop road in the picnic area and selected roads in the historic core of the fort would reduce maintenance requirements. Removing the existing roadway bridge, existing parking area, and

selected road segments also would reduce maintenance and improve the efficiency of park operations over the long term.

The existing roadway bridge would remain open during construction and would continue to be used as visitor access to the park until after completion of the new parking area and pedestrian bridge. Traffic control measures would be implemented to minimize visitor safety issues during construction. Park operations elsewhere in the park would not be disrupted during construction, although staff time would be required for coordinating construction. Implementation of the preferred alternative would have a local short-term minor adverse impact on park operations during construction due to additional staff time requirements and a parkwide long-term minor beneficial effect on park operations from reduced maintenance requirements and improved efficiency.

**Cumulative Impacts.** Past actions such as restoration and reconstruction of historic buildings have had a beneficial effect on park operations. Planned future actions such as paving gravel streets within the historic core of the fort would improve park operations by reducing maintenance requirements. The planned future construction of a new visitor center west of the Pawnee River would greatly enhance park operations by providing upgraded visitor contact facilities and modern accommodations for offices for park staff. Past, present, and reasonably foreseeable future projects would result in parkwide long-term moderate beneficial impacts to park operations.

As described above, implementation of the preferred alternative would result in both short-term minor adverse impacts and parkwide long-term minor beneficial impacts to park operations. The impacts of this alternative, in combination with the long-term beneficial impacts of other past, present, and reasonably foreseeable future actions, would result in a parkwide long-term beneficial cumulative effect. The beneficial effects of the preferred alternative would be a relatively small component of the beneficial cumulative impact.

**Conclusion.** The preferred alternative would have a local short-term minor adverse impact on park operations during construction and a parkwide long-term minor beneficial effect on park operations from reduced maintenance requirements. Cumulative effects would be parkwide, long-term, and beneficial.

### *Alternative 3—Provide New Access from 180th Avenue*

**Direct and Indirect Impacts of the Alternative.** Impacts to park operations under Alternative 3 would be similar to the preferred alternative. Constructing an approximately 0.3-mile-long new access road, constructing a new maintenance road, and constructing a new parking area and pedestrian bridge would create new park amenities that would require additional maintenance. Paving the loop road in the picnic area and selected roads in the historic core of the fort would reduce maintenance requirements. Removing the existing roadway bridge, existing parking area, and selected road segments also would reduce maintenance and improve the efficiency of park operations over the long term.

The existing roadway bridge would remain open during construction and would continue to be used as visitor access to the park until after completion of the new parking area and pedestrian bridge. Traffic control measures would be implemented to minimize

visitor safety issues during construction. Park operations elsewhere in the park would not be disrupted during construction, although staff time would be required for coordinating construction. Implementation of Alternative 3 would have a local short-term minor adverse impact on park operations during construction due to additional staff time requirements and a parkwide long-term minor beneficial effect on park operations from reduced maintenance requirements and improved efficiency.

**Cumulative Impacts.** Past actions such as restoration and reconstruction of historic buildings have had a beneficial effect on park operations. Planned future actions such as paving gravel streets within the historic core of the fort would improve park operations by reducing maintenance requirements. The planned future construction of a new visitor center west of the Pawnee River would greatly enhance park operations by providing upgraded visitor contact facilities and modern accommodations for offices for park staff. Past, present, and reasonably foreseeable future projects would result in parkwide long-term moderate beneficial impacts to park operations.

As described above, implementation of Alternative 3 would result in both short-term minor adverse impacts and parkwide long-term minor beneficial impacts to park operations. The impacts of Alternative 3 in combination with the long-term beneficial impacts of other past, present, and reasonably foreseeable future actions would result in a parkwide long-term beneficial cumulative effect. The beneficial effects of Alternative 3 would be a relatively small component of the beneficial cumulative impact.

**Conclusion.** Alternative 3 would have a local short-term minor adverse impact on park operations during construction and a parkwide long-term minor beneficial effect on park operations from reduced maintenance requirements. Cumulative effects would be parkwide, long-term, and beneficial.

## **CONSULTATION AND COORDINATION**

A public scoping notice describing the preferred alternative initiated public scoping on May 25, 2011 (Appendix C). The park sent letters describing the proposed project and asking for comments to 47 print organizations; six radio stations; 21 television stations; 49 federal, state, and local political entities; and the local Chamber of Commerce and tourism committee. In addition, the scoping letter was mailed to various federal and state agencies and seven affiliated American Indian tribes. . Public scoping comments were solicited through July 1, 2011.

### **AGENCY CONSULTATION**

A separate assessment of effect document is being prepared in compliance with section 106 of the National Historic Preservation Act in consultation with the SHPO. The Park Service has determined there will be no adverse effect on cultural resources.

The U.S. Fish and Wildlife Service was also contacted during scoping by telephone and will be provided with an opportunity to review the document. No formal or informal consultation is required as there would be no effect on listed, candidate, rare, or sensitive species.

### **AMERICAN INDIAN CONSULTATION**

Seven American Indian tribes (Northern Arapahoe, Oglala Sioux, Kiowa, Southern Cheyenne, Pawnee, Comanche Nation, and Fort Sill Apache) were contacted on January 28, 2011 to determine if any ethnographic resources were in the project area and if the tribes wanted to be involved in the environmental compliance process. No responses were received from any of the tribes contacted as of the date of this EA.

The public, agencies, and American Indian groups traditionally associated with the lands of the park will also have an opportunity to review and comment on this EA. If subsequent issues or concerns are identified, appropriate consultations will be undertaken.

### **ENVIRONMENTAL ASSESSMENT REVIEW AND LIST OF RECIPIENTS**

This EA is subject to a 30-day public comment period. To inform the public of the availability of this EA, the Park Service will publish and distribute a letter or press release to various agencies, tribes, and members of the public on the park's mailing list, as well as in local newspapers. Copies of this EA will be provided to interested individuals upon request and will be available for review at the park and on the park website.

During the public comment period, the public is encouraged to submit their comments to the NPS address provided on the cover page at the beginning of this document. Following

## CONSULTATION AND COORDINATION

the close of the comment period, all public comments will be reviewed and analyzed prior to the release of a decision document. The Park Service will issue responses to substantive comments received during the public comment period and will make appropriate changes to this EA, as needed.

# COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

The Park Service will comply with all applicable federal and state regulations when implementing the preferred alternative. Permitting and regulatory requirements for the preferred alternative are listed in Table 10.

**TABLE 10. ENVIRONMENTAL COMPLIANCE REQUIREMENTS**

Agency	Statute, Regulation, or Order	Purpose	Project Application
<b>Federal</b>			
National Park Service	National Environmental Policy Act	Applies to federal actions that may significantly affect the quality of the environment.	Environmental review of preferred alternative and decision to prepare a FONSI or EIS.
	National Historic Preservation Act, Section 106	Protection of historic and cultural resources.	Section 106 consultation with SHPO.
	EO 11990, "Protection of Wetlands"	Requires avoidance of adverse wetland impacts, where practicable, and mitigation, if necessary.	The preferred alternative would avoid wetland impacts to the extent possible.
	EO 11988, "Floodplain Management"	Requires avoidance of adverse floodplain impacts, where practicable, and mitigation, if necessary.	The entire park is within the 100-year floodplain.
	NPS DO – 77-2: <i>Floodplain Management</i>	Protection of natural resources and floodplains.	A floodplain SOF was prepared because proposed facilities would be in a floodplain.
U.S. Army Corps of Engineers	Clean Water Act – Section 404 Permit to discharge dredge and fill material	Authorizes placement of fill or dredge material in waters of the U.S. including wetlands.	The park would seek a Nationwide 404 Permit if any fill is placed within waters of the U.S.
U.S. Fish and Wildlife Service	Endangered Species Act	Protection of federally listed threatened and endangered species.	The park conferred with the USFWS as part of the NEPA process.
<b>State of Kansas</b>			
Kansas Department of Health and Environment	National Pollutant Discharge Elimination System (NPDES) Stormwater Runoff from Construction Activities General Permit	Erosion control and protection of water quality.  Water quality protection associated with discharge of intercepted groundwater.	A SWPPP would be developed prior to grading and surface disturbances.

# **LIST OF PREPARERS AND CONTRIBUTORS**

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Executive Order (EO) 11988, “Floodplain Management” requires the National Park Service (NPS) and other agencies to evaluate the likely impacts of actions in floodplains. It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. If a proposed action is in an applicable regulatory floodplain, then flood conditions and associated hazards must be quantified and a formal Statement of Findings (SOF) must be prepared. NPS *Procedural Manual #77-2, Floodplain Management* provides direction for the preparation of a floodplain SOF. This SOF has been prepared to comply with EO 11988 and *Procedural Manual #77-2*.

## PROPOSED ACTION

The Park Service, in cooperation with the Federal Highway Administration (FHWA), is considering demolishing the deteriorated highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site (park or Fort Larned). A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River. The project would also include removing an existing gravel and paved parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. The entrance road would have new surfacing along its entire length. A new paved parking area also would be constructed with a walkway to the visitor center.

### Site Description

The proposed project would be completed within the 100-year floodplain and would:

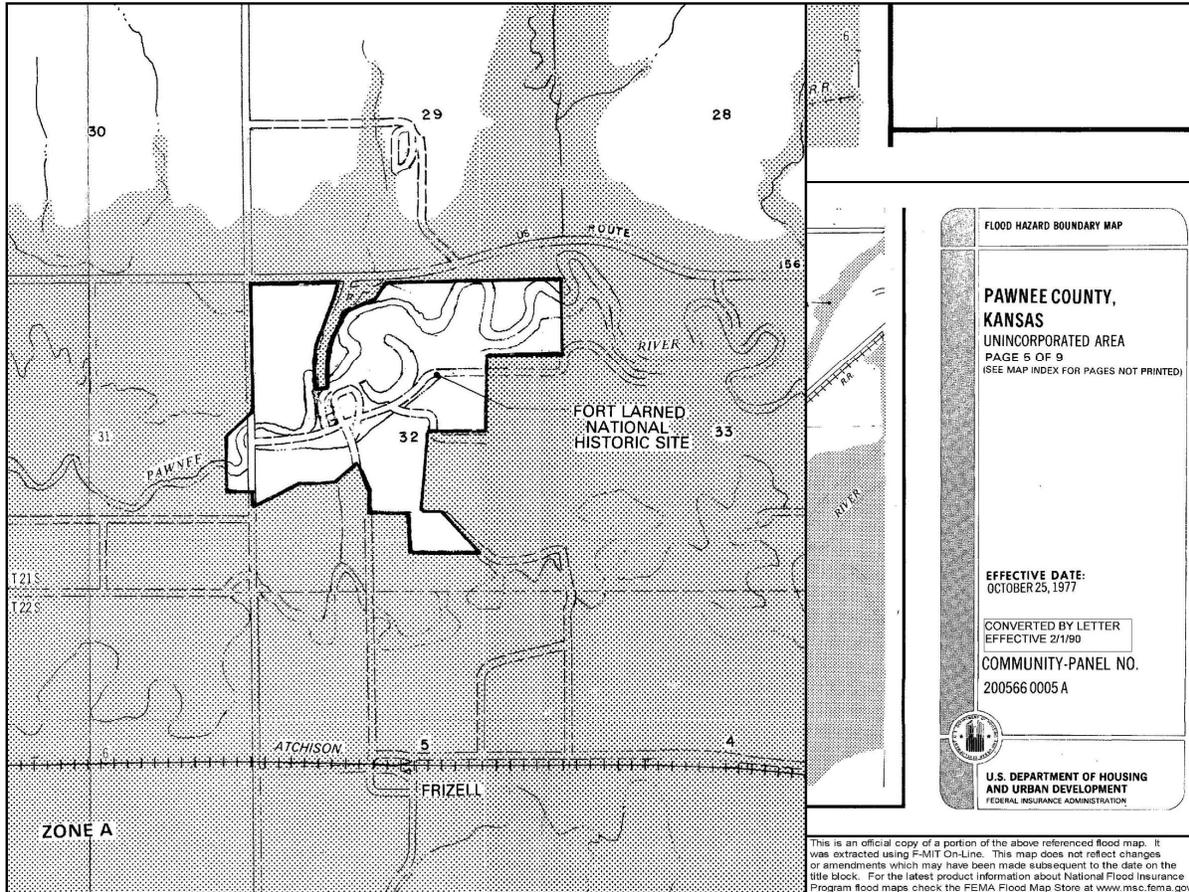
- Remove the deteriorated 300-foot-long highway bridge over the Pawnee River, including the bridge piers within the active river channel;
- Construct a 250-foot long, 10-foot wide pedestrian bridge (with 1,000 feet of connecting walking surface) that completely spans the active river channel with no bridge piers or abutments within the active river channel; and
- Remove a 0.6-acre parking area near the river and add a new road (0.4 mi/1.16 acres) and 0.86-acre parking area about 200 feet from the river.

The proposed action is needed to remove the existing Pawnee River bridge, which is so deteriorated that the FHWA has recommended major renovation of the bridge, including demolition and reconstruction of some parts of the bridge. The bridge load capacity has been reduced to 10 tons. The bridge is no longer able to meet its designed purpose and is an intrusion on the visitor experience at the park. The new bridge would improve safety by eliminating vehicle and pedestrian conflicts and vehicle traffic on the deteriorated bridge. The new bridge would also help restore the 1870s atmosphere at the park by removing vehicles from the historic site east of the river and by designing the pedestrian bridge to be compatible with the historic setting of Fort Larned.

## Floodplains

The entire park is within the 100-year floodplain of the Pawnee River mapped by the Federal Emergency Management Agency in 1977 (Figure A-1). The floodplain is about 3 miles wide at the park, with its northern edge about 1,300 feet north of the northern park boundary and its southern edge about 10,000 feet south of the southern park boundary.

**Figure A-1. Floodplain Mapping at Fort Larned National Historic Site**



## Hydrology and Flood History of the Pawnee River

The Pawnee River has been modified since the early 20th century. Portions of the river have been diverted, diked, altered, and channelized for irrigation and other water uses and for flood control purposes. The river has undergone downcutting, narrowing, and straightening in the vicinity of the park (Martin 1992). The gradient of the Pawnee River is very low; therefore, flood velocities would be very low (Fort Larned NHS Floodplain SOF 1994). Flash floods are virtually unknown and flood conditions take several days to develop. The U.S. Army Corps of Engineers estimated the 100-year flood elevation just upstream of the park to be about 2,042 feet above sea level.

The U.S. Geological Survey (USGS) maintains a streamflow gage on the Pawnee River about 8 miles upstream of the park (USGS 2010). At this location, the drainage area of the river is 2,148 square miles. Streamflow data have been collected at the gage since 1920. Average monthly streamflows range from 6 to 7 cubic feet per second (cfs) in December and January to 140 to 150 cfs in June and July, and the average annual flow is 58 cfs. No flow conditions have been known to occur in the river during all months of the year. Annual peak flows are typically less than 5,000 cfs, but they have been above 5,000 cfs in 11 years between 1920 and 2009. Peak flows exceeding 10,000 cfs have occurred twice during the period of record. The largest recorded flow of 16,300 cfs occurred in July 1958 (USGS 2010); this was considered nearly 100-year magnitude (Fort Larned NHS Floodplain SOF 1994). The largest recent recorded peak streamflows were 9,780 cfs in July 1979 and 6,210 cfs in July 1993 (USGS 2010). The 1993 storm caused flooding in some parts of the park.

### **Justification for Use of the Floodplains**

The original fort was constructed where it exists today; therefore, the historic structures have always existed in the floodplain. The location in the floodplain and adjacent to the Pawnee River is necessary to preserve the integrity of the historic structures and the historic core area of the fort. The new bridge, road, and parking facilities could not be constructed outside of the Pawnee River floodplain because the floodplain boundaries are well outside of the park boundaries.

### **Investigation of Alternative Sites**

The Park Service considered demolishing the existing bridge and replacing it with a new bridge at the current location. The access road would not be extended and the park would continue to use the existing parking area. This alternative was eliminated because it would not meet the objective of providing a historically accurate entrance to the park.

The Park Service considered constructing a new access to the park from 180th Avenue. Under this alternative, the existing bridge and parking area would be removed and a new parking area and bridge would be constructed as described in the preferred alternative; however, the access road would not be extended. Instead, the new bridge and parking area would be accessed by a new road from 180th Avenue. This alternative would require the addition of turn lanes on 180th Avenue. This alternative also would result in potential safety issues due to the proximity to the 180th Avenue bridge over the Pawnee River and from conflict between vehicles accessing the park and farm vehicles using 180th Avenue. This alternative was eliminated from further consideration because it would not meet the objective of providing a safe, easily accessible entrance to the park.

### **Characterization of and Effect on Floodplain Values**

The Pawnee River's natural floodplain values have been altered by human activities, including more than 70 farm-related water retention structures that have been erected in the watershed upstream of Fort Larned within the past 40 years. The Pawnee Watershed District

has erected two large flood control and recreational reservoirs on the Pawnee River upstream from the park. The effect of these structures on flooding at Fort Larned has not been quantified, but probably has reduced the magnitude of floods at the park (Fort Larned NHS Floodplain SOF 1994).

Within the park, the floodplain still has many natural values. The Pawnee River is deeply incised and the riverbanks are largely covered by a riparian forest that provides habitat for a variety of plant and wildlife species, and stabilizes the riverbanks. Outside of the riverbanks the terrain is flat, with some less-dense scattered riparian vegetation. The wooded riparian buffer on the Pawnee River within the park remains in a natural state without development except the location of the existing bridge. The existing road, parking area, and the historic structures adjacent to the Pawnee River have altered some of the natural floodplain, but the overall effect on the river's floodplain values is probably not measurable because the footprint of the park's structures are very small compared to the size of the Pawnee River floodplain.

The proposed action would have minimal effects on the natural and beneficial values of the floodplain during construction and over the long term. Demolition of the old bridge and construction of the new bridge would occur during low flows and would be halted during storms when the threat of higher river flows is present. Construction activities would be monitored and erosion and sediment control Best Management Practices (BMPs) would be implemented to prevent erosion or downstream siltation. The new road and parking area would increase the impervious surface area in the floodplain by about 1.6 acres, which would increase runoff to the river during precipitation events. The piers within the active channel of the Pawnee River would be removed. The new pedestrian bridge would have no structures within the active river channel, which would allow for unobstructed flow in the Pawnee River channel during normal flows and would not adversely impact flood flows. After the existing bridge is demolished, the site would be graded to match the natural contours of the river channel and revegetated. The removal of riparian vegetation would be minimized at the location of the new pedestrian bridge. Removal and revegetation of the existing parking area and placement of the proposed road and parking area within the floodplain would have no measurable effect on the floodplain because they are flat structures that would not impede or alter flood flows. Overall, none of the proposed actions within the 100-year floodplain would substantially affect floodplain functions, restrict channel capacity, or increase the risk of flooding and would minimize the impact of floods on human safety, health, and welfare. Facilities would be retained in the 100-year floodplain because they would have minimal impacts to natural floodplain values.

### **Hydrologic Risk**

The floodplain would be slightly negatively impacted during construction due to the presence of construction equipment and materials and possible erosion from bare soils prior to revegetation. The floodplain would be improved in the long term by removal of the bridge piers in the active river channel, and grading to match the natural contours of the river channel.

## MITIGATIVE ACTIONS

Mitigation would be provided by incorporating methods for protecting life and minimizing damage through appropriate procedures. Mitigation would include sustainable design principles that minimize impacts to the natural environment (such as the use of recycled building materials and building into the natural configuration of the land), an appropriate elevation for the new bridge, avoidance of any permanent structures in the active river channel, and Best Management Practices (BMPs) during and after construction. BMPs are described in the Fort Larned NHS Environmental Assessment.

The project would be designed to minimize the adverse environmental impacts on natural floodplain values, minimize potential risk to lives and property, maintain the natural and beneficial floodplain values in the park, and keep the floodplain environment as close to its natural state as possible using all practicable means. Such means include grading the site to match the natural contours of the river channel, minimizing the removal of riparian vegetation, and minimizing the construction of structures that would alter or impede the natural flow of the river and flood flows. The bridge would be designed to avoid scouring, deposition, and other damage to floodplains. Placement of fill in within the river channel would not occur. Free natural drainage and natural contours would be preserved to the extent practicable when designing and constructing the new road, parking lot, and bridge. The site would be revegetated when construction is complete. Minimum grading requirements would be used and compaction would be minimized.

Because flash floods are virtually unknown on this part of the Pawnee River and flood conditions take several days to develop, there would be ample warning time to implement a flood emergency plan at the park. This plan would include an evacuation plan for visitors, park personnel, and important historical documents and artifacts. An Emergency Operations Plan, including an evacuation plan, is on file at the park.

These mitigative measures would be in accordance with NPS floodplain guidelines and with EO 11988, "Floodplain Management."

## COMPLIANCE

The new pedestrian bridge for the Pawnee River would accommodate natural streamflows up to the 50-year storm flow, but would be topped by 100-year flood flows. Because the old bridge and piers would be removed, there would be some localized measurable improvement in the ability of the floodplain to convey floodwaters, and the bridge construction would not contribute to flooding.

Section 401 of the Clean Water Act requires a permit for any activity that may result in any discharge into navigable waters of the United States. Section 404 of the Clean Water Act requires a permit for any activity that may result in the discharge of dredged or fill material into navigable waters of the United States. Therefore, a section 401 permit would be required for this project. A section 404 permit would be required if fill material is placed within the Pawnee River or wetlands adjacent to the river.

Section 401 and 404 permits, the Environmental Assessment, this SOF for EO 11988 and *Procedural Manual #77-2*, and the finding of no significant impact (FONSI), when signed, would complete the requirements for the National Environmental Policy Act (NEPA) for this project.

## CONCLUSION

The protection of people and property is of high priority to the Park Service. The proposed project would be constructed on NPS-managed land and the Pawnee River flows across Fort Larned. The Park Service concludes that there is no other practicable alternative for the proposed project. With the new road, parking lot, and bridge designed to prevent or reduce flood damage, the risk to life and property would be minimized. There would be no significant negative effect on natural or beneficial floodplain values.

Mitigation would include good design through sustainable design principles, appropriate siting, BMPs during and after construction, and evacuation of visitors, park personnel, and historical documents and artifacts if and when flood conditions develop. The Park Service finds the proposal to be consistent with EO 11990.

## REFERENCES

- Martin, Michael. 1992. Hydrologic Analysis of the Pawnee River in the Vicinity of Fort Larned National Historic Site, Kansas. Appendix A of the Fort Larned National Historic Site General Management Plan Amendment, Development Concept Plan, and Interpretive Prospectus.
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## **APPENDIX B**

### **Scoping Announcement and Agency Comments**

Public Scoping Notice

Scoping letter to Kansas Historical Society - State Historic Preservation Officer

Scoping Letter Sent to Tribal Representatives



National Park Service

For Immediate Release  
May 26, 2011

Contact: Superintendent  
620-285-6911

## **Public Comment Sought on Environmental Assessment for Bridge Replacement**

The National Park Service is considering demolition of the severely deteriorated 300-foot-long bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project may also include removal of the existing parking area and extending the two-lane main entrance road 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

The Federal Highway Administration (FHWA) has recommended major renovation of the existing bridge and has reduced the capacity from 40 tons to 10 tons. The bridge is no longer able to meet its designed purpose and is an intrusion on the visitor experience at the fort. The new bridge would improve safety by eliminating vehicle and pedestrian conflicts. The new bridge also would help to restore the 1870's atmosphere of the fort, providing visitors an improved historic experience.

An Environmental Assessment will be prepared in compliance with the National Environmental Policy Act to provide a decision-making framework that analyzes alternatives to meet objectives, evaluates impacts to park resources, and identifies measures to lessen the degree or extent of these impacts.

The public is invited to provide input on the proposed Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge with Parking Facilities. Comments received during the scoping period will be used to help define the issues and concerns to be addressed in the environmental assessment.

Comments should be submitted online beginning May 25, 2011 by visiting <http://parkplanning.nps.gov>, the website for the NPS's Planning Environment and Public Comment (PEPC) system. Comments also may be sent to the address below. The comment period will end July 01, 2011.

Superintendent at Fort Larned National Historic Site  
RR, Box 69  
Larned, KS 67550-9321

Commentors should be aware that their entire comment – including personal identifying information – may be made publicly available at any time. While commentors can ask that their personal identifying information be withheld from public review, the National Park Service cannot guarantee that this will be possible.

If you have questions about the project or would like more information, please contact Superintendent, Kevin McMurry at the above address, by phone at 620-285-6911 or email at [kevin\\_mcmurry@nps.gov](mailto:kevin_mcmurry@nps.gov).

-NPS-

[Attachment: Map of Project Area \(Fort Larned National Historic Site\)](#)



**MAP OF PROJECT AREA**



United States Department of the Interior  
NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Jennie Chinn  
State Historic Preservation Officer  
Kansas Historical Society  
6425 SW 6<sup>th</sup> Avenue  
Topeka, KS 66615-1099

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Ms. Chin,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

The current bridge is restricted from 40 tons to 10 tons by the Federal Highway Administration (FHWA) and requires demolition of the road surface, superstructure and sections of the foundation columns, followed by reconstruction of these elements. The bridge no longer meets its designed purpose, is historically incorrect, and is a significant intrusion on the visitor experience at the fort.

In accordance with the Advisory Council on Historic Preservation regulations, 36 CFR Part 800: Protection of Historic Properties, the National Park Service will comply with Section 106 of the National Historic Preservation Act of 1966, as amended. This scoping notice serves to initiate Section 106 consultation with your office. Section 106 consultation is also being initiated with identified Native American Tribes.

We have identified consulting parties for National Environmental Policy Act (NEPA) and Section 106 purposes, and are now working to identify all applicable historic properties and areas of potential effect (APE). We are notifying your office in advance of our intent to submit an assessment of effect when it is completed. We look forward to your participation in helping to ensure cultural resources are adequately considered. In the meantime, we would appreciate any preliminary input to the proposed project by March 01, 2011.

If you have questions or need additional information, please contact me at (620) 285-6911 or email at [kevin\\_mcmurry@nps.gov](mailto:kevin_mcmurry@nps.gov).

Sincerely,

Kevin McMurry  
Superintendent

Enclosure



United States Department of the Interior  
NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Northern Arapahoe Business Council  
Attn: Chairman, Kim Harjo  
P.O. Box 396  
Fort Washakie, WY. 82514

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Sir,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

The current bridge is restricted from 40 tons to 10 tons by the Federal Highway Administration (FHWA) and requires demolition of the road surface, superstructure and sections of the foundation columns, followed by reconstruction of these elements. The bridge no longer meets its designed purpose, is historically incorrect, and is a significant intrusion on the visitor experience at the fort.

In accordance with the Advisory Council on Historic Preservation regulations, 36 CFR Part 800: Protection of Historic Properties, the National Park Service will comply with Section 106 of the National Historic Preservation Act of 1966, as amended. This scoping notice serves to initiate Section 106 consultation with your office. Section 106 consultation is also being initiated with the Kansas Historic Preservation Officer and others.

We have identified consulting parties for National Environmental Policy Act (NEPA) and Section 106 purposes, and are now working to identify all applicable historic properties and areas of potential effect (APE). We are notifying your office in advance of our intent to submit an assessment of effect when it is completed. We look forward to your participation in helping to ensure cultural resources are adequately considered. In the meantime, we would appreciate any preliminary input to the proposed project by March 01, 2011.

If you have questions or need additional information, please contact me at (620) 285-6911 or email at [kevin\\_mcmurry@nps.gov](mailto:kevin_mcmurry@nps.gov).

Sincerely,

Kevin McMurry  
Superintendent

Enclosure



United States Department of the Interior  
NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Oglala Sioux Tribe  
Attn: President, John Yellow Bird Steele  
Pine Ridge, SD. 57770

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Sir,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

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United States Department of the Interior  
NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Kiowa Tribe  
Attn: Councilman, Sherman Chaddlesone  
P.O. Box 369  
Carnegie, OK. 73015-0369

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Sir,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

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NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Southern Cheyenne Cultural Committee  
Attn: Mr. Gordon Yellowman  
200 Wolf Robe Circle, Box 145  
Concho, OK. 73662

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Sir,

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Superintendent

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NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Pawnee Business Council  
Attn: Councilman Marshal Gover  
P.O. Box 470  
Pawnee, OK. 74058-0470

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

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NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Comanche Nation  
Attn: Chairman Michael Burgess  
Box 908  
Lawton, OK. 73502

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Sir,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

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Superintendent

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United States Department of the Interior  
NATIONAL PARK SERVICE  
Fort Larned National Historic Site  
1767 KS HWY 156  
Larned, KS 67550-9321

January 28, 2011

Fort Sill Apache  
Attn: Chairman Jeff Houser  
Rt. 2, Box 121  
Apache, OK. 73006-9644

**Subject: Scoping Notice — Preparation of an Environmental Assessment and Assessment of Effect  
for Project to Demolish Failing Traffic Bridge and Construct New Pedestrian Bridge**

Dear Chairman Houser,

The National Park Service is considering demolition of the deteriorated 300-foot-long highway bridge across the Pawnee River that serves as the main entrance to Fort Larned National Historic Site. A new pedestrian bridge would be constructed near the historic military crossing of the Pawnee River, designed to be compatible with the historic setting of Fort Larned. The project also includes removal of the existing parking area and extending the two-lane main entrance road by about 0.4 mile to the location of the new bridge. A new paved parking area would be constructed with an accessible walkway to the visitor center.

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Sincerely,

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



National Park Service  
U.S. Department of the Interior



Fort Larned NHS  
1767 KS Hwy 156  
Larned, KS 67550-9321