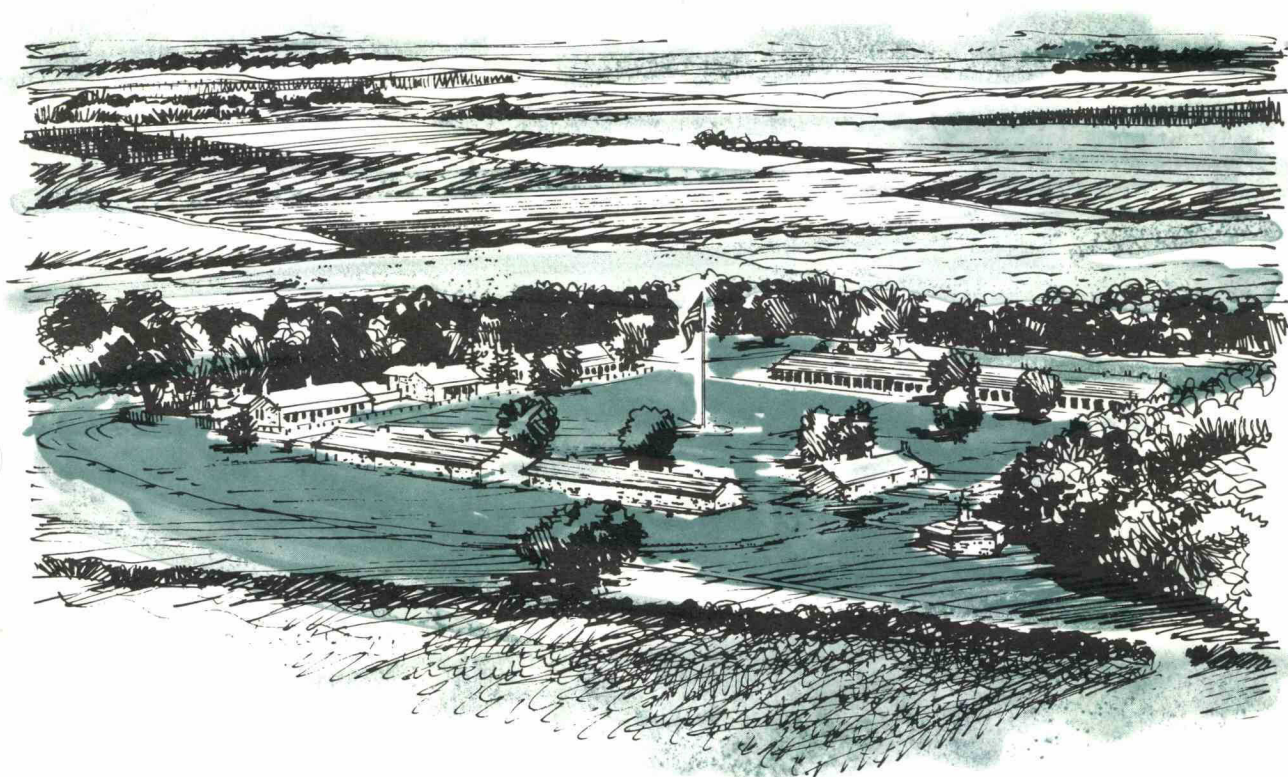


D-39A

General Management Plan Amendment
Development Concept Plan
Interpretive Prospectus



FORT LARNED

National Historic Site • Kansas

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General Management Plan Amendment
Development Concept Plan
Interpretive Prospectus

FORT LARNED

National Historic Site • Kansas

SUMMARY

This *General Management Plan, Development Concept Plan, and Interpretive Prospectus* will guide the management of Fort Larned National Historic Site for the next decade. It updates the 1978 master plan to reflect current conditions at the park and addresses significant issues affecting the management of the resources at the historic site. The issues include increased visitation and its resulting impact on resources, modern intrusions on the historic scene, lack of visitor center space, lack of administrative office and curatorial space, inadequate maintenance and storage space, and inadequate site access and circulation. The document describes the management strategies, development actions, and interpretive programs necessary to accomplish the purpose of the site, which is to commemorate the significant role played by Fort Larned in the opening of the west. The plan was derived from five alternatives, including a no-action alternative. It was produced after the draft document, which included all of the alternatives and an environmental assessment, was reviewed extensively by National Park Service staff and made available for public comment. Public review took place from June 20 until August 1, 1994. A public meeting was held at Fort Larned on July 7, 1994. The environmental assessment included impacts on the natural, cultural, socioeconomic, and visitor use aspects of the site. The statement of findings and finding of no significant impact are attached to this document as appendix C.

The plan directs that all the historic structures be restored to the 1868-1878 period, and that those missing structures that are considered key to the interpretive mission of the park be reconstructed to that period. The integrity and authenticity of the park's surviving historic resources will be emphasized, and there will be very little adaptive reuse of historic structures. All modern intrusions (such as bridges, irrigation ditches, and parking) will be removed if possible, and overhead utilities will be buried. The interpretive program will be expanded to increase the understanding of the relationships between the fort, the Santa Fe Trail, the native inhabitants, immigrant cultures, and the environment. The visitor center, administration, operations, and curation facilities will be relocated to a new visitor center/administration building outside of the historic core. A new entrance road will be built to reach the visitor center, and directional signs will be improved. The maintenance building and storage facilities will be expanded. Some disturbance to vegetation is expected. Management zones were modified to permit implementation of the plan. No park housing will be provided onsite, and no boundary adjustments are necessary to implement this plan.

The plan will have positive impacts on the wetland at the bridge removal site. There will be short-term impacts on soils and vegetation during construction, but there will be a net gain in vegetation and wildlife habitat due to restoration in other areas of the historic site. Flood mitigation measures are described in detail. The visitor experience will be improved by the removal of onsite intrusions, increased accessibility, and the restoration of all historic structures to the historic period.

Tables and maps are included to illustrate the plan, and the appendixes include design guidelines.

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INTRODUCTION

PURPOSE OF AND NEED FOR THE PLAN

Purpose

Fort Larned was authorized on August 31, 1964, by Public Law 88-541. According to the enabling legislation, the purpose of the park is "to commemorate the significant role played by Fort Larned in the opening of the west." The acquisition of up to 750 acres of land for the park, either in fee simple ownership or in owned interest in the land (such as easements), was authorized. This purpose statement did not describe the direction that commemoration should take or how the commemoration should be accomplished. To clarify and focus the purpose statement quoted above, the staff and planning team added the phrase "by preserving, protecting, interpreting, and administering the resources of Fort Larned for the public as a national historic site" to the purpose statement.

Background

Fort Larned National Historic Site is located on Kansas Highway 156, six miles west of the city of Larned in Pawnee County, Kansas. The site includes 718.39 acres of land composed of 410.46 acres in fee simple ownership, 269.20 acres of scenic easements, and 38.73 acres owned by the state.

Larned is the county seat of Pawnee County. Major cities close to the site include Salina, 100 miles northeast; Hutchinson, 75 miles east; Wichita, 125 miles southeast; Hays, 60 miles north; Garden City, 100 miles west; and Dodge City, 60 miles southwest.

The fort today consists of nine original sandstone structures and a reconstructed blockhouse along the south bank of the Pawnee River (a dry streambed most of the year), 8 miles above the confluence with the Arkansas River.

Through easements the boundary of the fort property extends west of an adjacent all-weather county road and north of Kansas Highway 156. The majority of the fort property is south of Kansas Highway 156 and east of the county road. A satellite area about 5 miles south and 1 mile west of the fort preserves ruts from the Santa Fe Trail traffic and 44 acres of virgin prairie. The modern park maintenance facility is located west of the fort on the west side of county road 976, completely separate from the historic core of the site. All other operational, administrative, and visitor functions are housed within the historic structures of the fort.

Significance

Fort Larned became a focal point for both friendly relations and conflicts between Indians and non-Indians on the plains before and after the Civil War. It has retained much of its historic setting and has authentic resources with which to interpret the history and cultures associated with Fort Larned and the Santa Fe Trail corridor in the last half of the 19th century.

INTRODUCTION

Issues

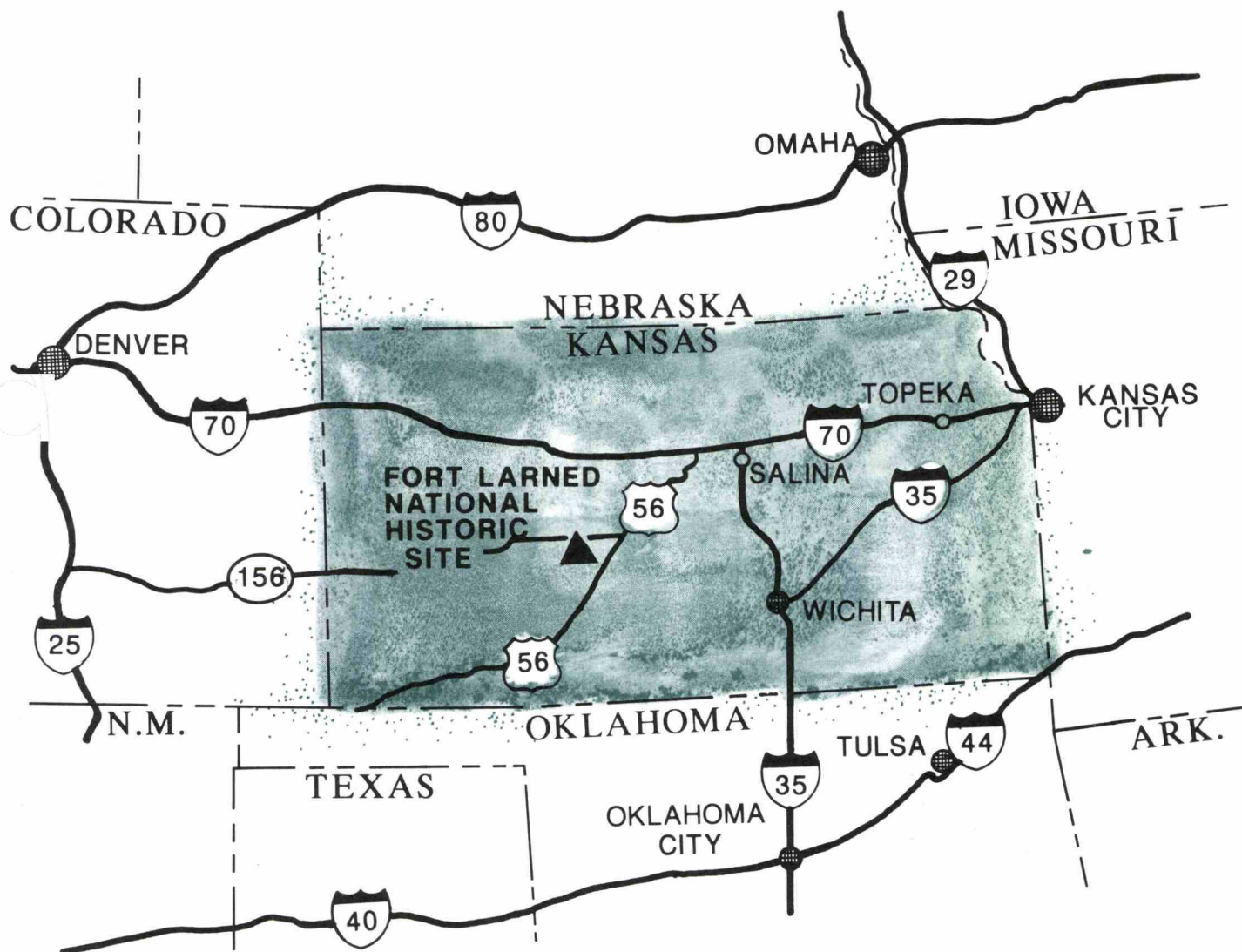
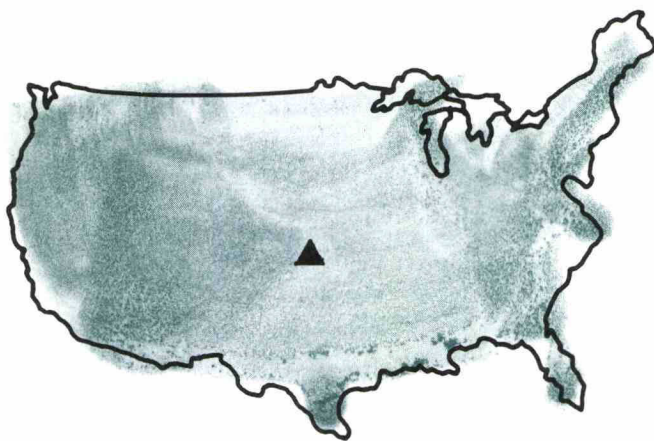
Concern about the impacts of increased visitation on the fort's historic structures and grounds prompted this study. Currently, all visitor facilities are housed in the historic structures, and there are several modern intrusions on the historic scene. These uses and intrusions compromise both the historic scene and the visitor experience. This general management plan amendment addresses the need for a new visitor center to serve as the primary interpretive center for both the central portion of the Santa Fe Trail and the park. The 1978 master plan did not anticipate the current visitor center needs, other than to point out the probable development zone for future parking west of the fort complex. The 1978 plan must be updated to reflect current conditions as well as to address several specific issues.

As proposed in the *Comprehensive Management and Use Plan for the Santa Fe Trail* (1990), a new visitor center is needed at Fort Larned. Neither the existing visitor center nor the administrative offices have expansion space in their present shared location in one of the barracks (HS-1). The interpretive program will present an expanded story of the central portion of the Santa Fe Trail, the Plains Indians, and the diverse cultural interactions at the fort. This expansion is expected to result in greater public interest, require more exhibit space, and necessitate staff increases. This general management plan amendment determines that a new visitor center is needed and recommends its location, its size, and the facilities it will contain. To make these determinations, the interpretive program was reviewed to verify its adequacy for existing and anticipated interpretive needs. This required an interpretive prospectus, which is included in this document. For there to be a new visitor center, the impact on historic structures must be determined and uses for the vacated historic structures identified. Interpretive programs that call for restoration of historic structures or the reconstruction of missing buildings must identify the levels of restoration or reconstruction.

All restoration and/or reconstruction of historic structures and the cultural landscape will be accomplished in accordance with NPS *Management Policies* (1988) and *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (1992). All studies necessary to support restoration/reconstruction undertakings, such as a cultural landscape report, historic structures reports or updates of the historic structures and historic furnishings reports, and an archeological overview and assessment will be programmed and completed to ensure that adequate data is available.

Current access to the site and circulation within the fort are detrimental to the historic scene and the visitor experience. Facilities are not laid out for the convenience of the visitor or park personnel, and any changes in facility location require the realignment of circulation routes. Specific problems include inadequate accessibility for people with disabilities, the highway bridge access into the historic core area, adequate storage for historic artifacts, fee collection, truck use of the picnic area, and the distance of the parking lot to the fort.

External threats include flood hazards, tornadoes, surrounding land development, and visual impacts on the historic scene, such as overhead power lines and contemporary farm buildings.



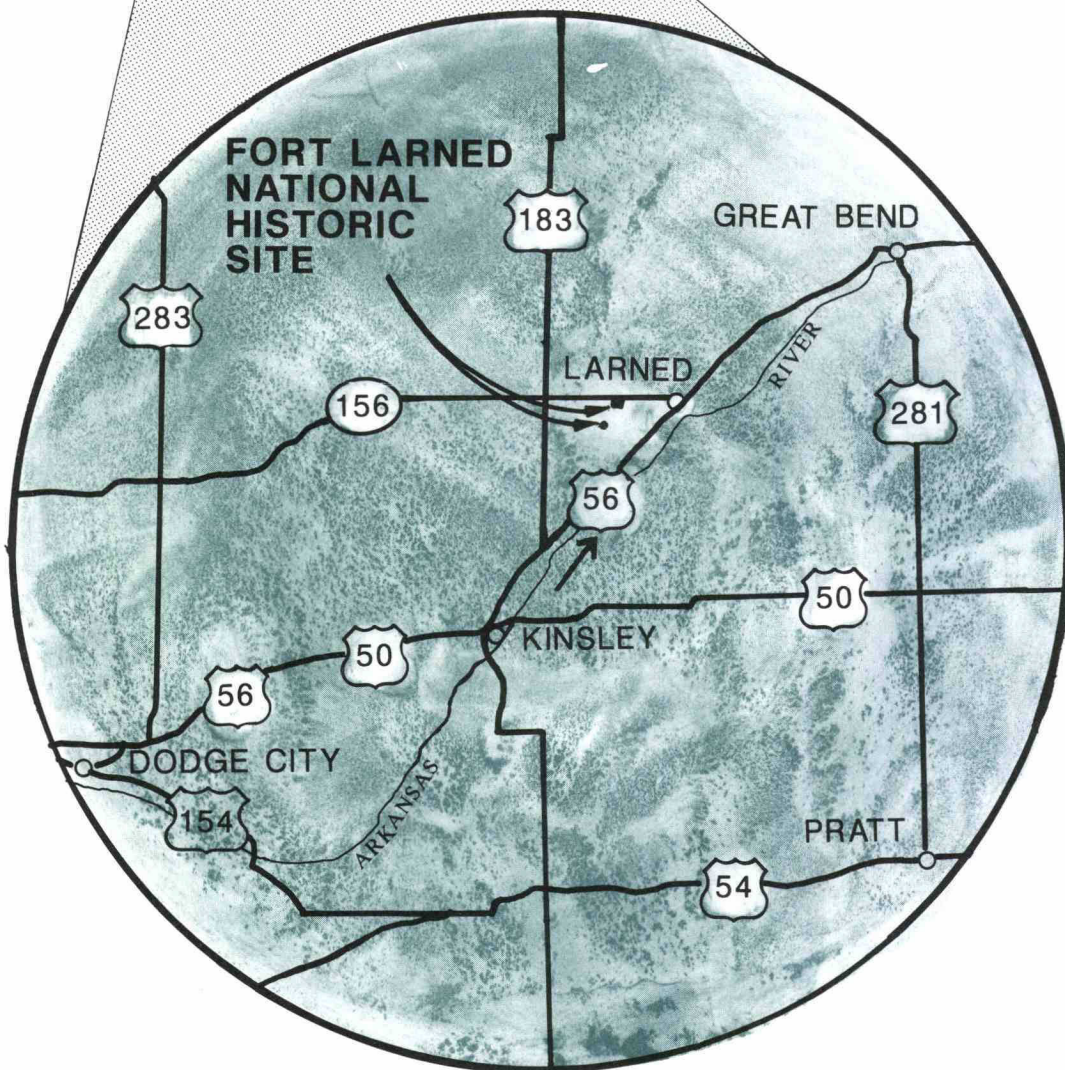
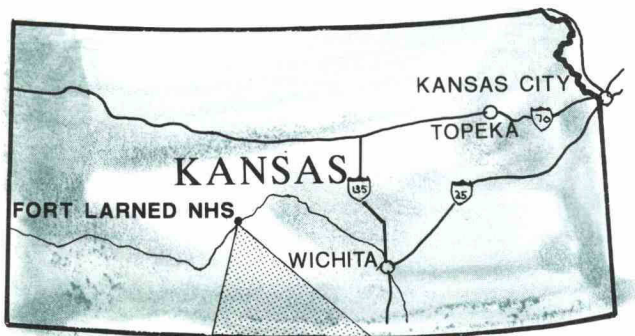
LOCATION

FORT LARNED NATIONAL HISTORIC SITE

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VICINITY

FORT LARNED NATIONAL HISTORIC SITE

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MANAGEMENT OBJECTIVES

Objectives from the park's statement for management that guided the preparation and analysis of the general management plan amendment for Fort Larned are:

identify, evaluate, preserve, protect, restore, and maintain the park's cultural and natural resources in a manner consistent with legislative mandates and National Park Service policies

re-create, to the extent possible consistent with management policies and historical documentation, an atmosphere of 1860s and 1870s Fort Larned, an isolated military post along the Santa Fe Trail, thereby providing the visitor with an opportunity to learn about and understand its role in the opening of the West

eliminate or minimize modern intrusions within the historic zone and its viewshed

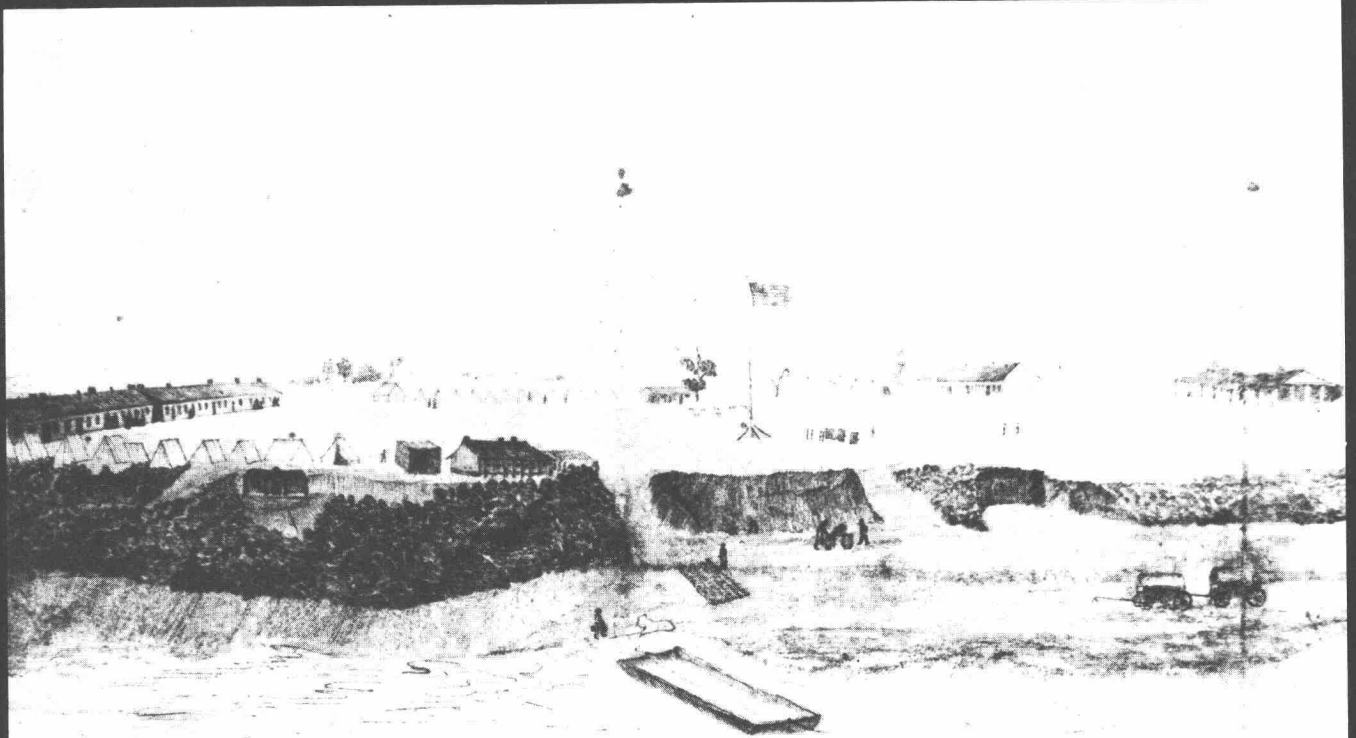
provide visitors with a varied, comprehensive, and effective interpretive program, focusing on the interactions between the frontier army, travelers on the Santa Fe Trail, and the Plains Indians

establish and implement a comprehensive education program in support of the "Parks as Classrooms" initiative that will feature a variety of curriculum-based education programs designed at individual grade levels

provide visitors and employees with a safe park environment free of unnecessary risk of injury or loss, balanced with the consideration for maintaining the historic integrity of park resources

manage all park activities and resources in a manner that will accomplish the mission of the park

THE GENERAL MANAGEMENT PLAN



Fort Larned, Kansas.

PLAN OVERVIEW

This plan proposes that all historic structures and the historic core area be restored to the historic period (1868-1878) appearance. The stable, adjutant's office, and sutler's complex will be reconstructed as they appeared during the historic period. All restoration and/or reconstruction of historic structures and the cultural landscape will be accomplished in accordance with *NPS Management Policies* (1988) and *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (1992). All studies necessary to support restoration and reconstruction undertakings, such as a cultural landscape report, historic structures reports or updates of the historic structures and historic furnishings reports, an archeological survey, and a data recovery program, will be programmed and completed to ensure adequate data availability.

A new building will be developed outside the historic core area to house the visitor center, administration, operations, and curation functions. The maintenance complex will be expanded. Onsite modern intrusions on the historic scene, such as vehicle traffic, the highway bridge, irrigation ditches, and the accessible parking lot will be removed (if possible) or visually screened. Mitigation of offsite visual intrusions, such as overhead power lines and farm structures, will be addressed in the cultural landscape report. Existing uses necessary for the operation of the site but not open or visible to the visitor will be retained within the core, including buried utilities, storm shelters, restrooms, and the water purification system.

The costs for the plan include the development and restoration costs, the costs for reconstructing the three buildings, and the costs for any additional studies required to accomplish the work. Advance and project planning costs are added to that total. The total cost of the plan is estimated to be \$17,313,100, including \$2,613,100 for advance and project planning. The work required under the plan will be accomplished in phases. It is recommended that the additional studies, maintenance expansion, and visitor center work be accomplished first. The second phase is recommended to include the majority of the restoration and reconstruction required, plus the removal of visual intrusions and revegetation of disturbed areas. A third phase will be available if necessary to complete the work of phase two.

LAND USE AND MANAGEMENT

Existing Land Use

The surrounding land use pattern will be the same as it has been in recent years.

Management Zoning

Existing management zoning categories at Fort Larned include cultural (historic), park development, and special use zones. Those categories remain, but their acreages and distributions across the site are modified as necessary to implement the plan.

The cultural zone remains unchanged from the 1978 master plan. The entire historic site is in this zone, including the Santa Fe Trail ruts area, the fort proper, the surrounding prairie and

riparian lands owned by the park, and those lands held in easement by the park. As they are currently developed and used, most of the utility easements within this zone do not intrude on the historic scene. Overhead utilities within the rights-of-way of adjacent roads and highways do interfere with the views to and from the fort.

The park development zone is composed of five subzones in three separate development areas: the administrative development subzone; the educational/interpretive development subzone; the recreational subzone; the access/circulation subzone; and the landscape management subzone (see Management Zoning map). The administrative development subzone includes the maintenance area and contemplated improvements west of the county road and the new headquarters facilities proposed for the area west of the officers' housing and the Pawnee River. The educational/interpretive development subzone includes the new visitor center. The recreational subzone includes the picnic area adjacent to Kansas Highway 156 and the new picnic area south of the visitor center. The access/circulation subzone includes the visitor center, the entrance road and parking lot, and the pedestrian bridge west of the officer's housing and the Pawnee River. The landscape management subzone extends for 150 feet on either side of the centerline of the Pawnee River channel within the boundaries of the park. The cultural landscape report will determine how the landscape in this subzone will be managed to maintain a vegetation screen and visual buffer between the historic areas south of the river channel and the modern developments and visual intrusions to the north and west.

The special use zone includes all the land within the park boundary that is not federally owned and/or that is held in easement. This includes all visual easements, the highway rights-of-way for Kansas Highway 156 and the county road, and interstate gas line easements.

RESOURCE MANAGEMENT

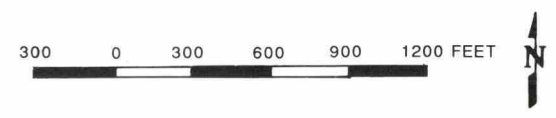
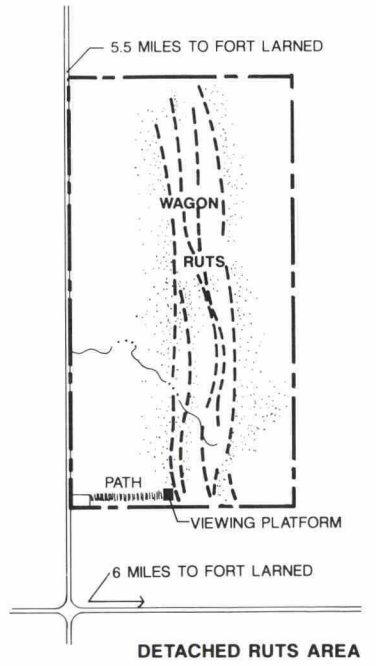
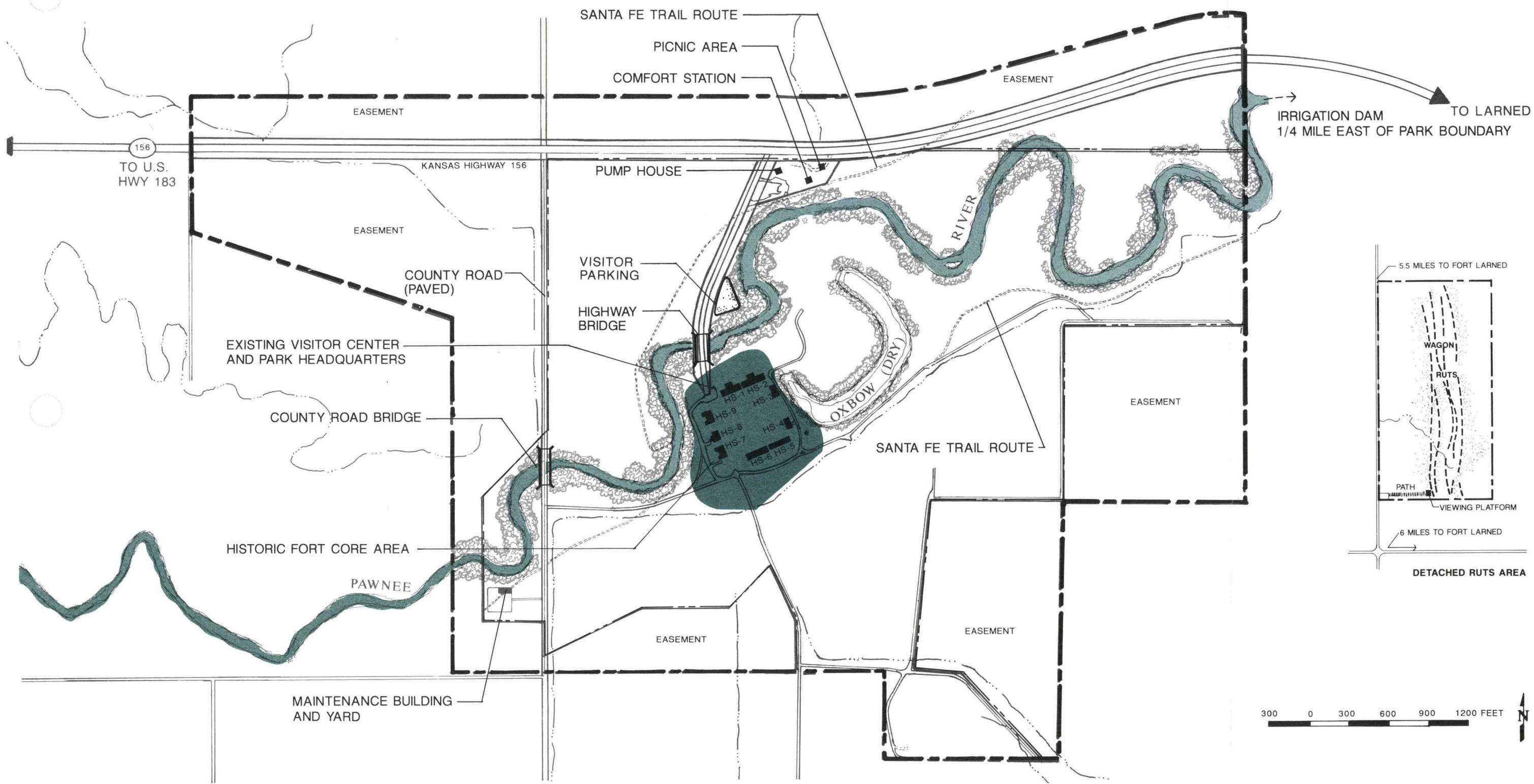
The National Park Service will continue to preserve and protect the cultural and natural resources of the park and emphasize cultural resources in accordance with the purpose of the legislation that created the park. The National Park Service will manage these resources consistently with applicable laws, regulations, and policies.

Natural Resources

Restoration and management of the prairie will be accomplished in accordance with the new prairie management plan, and natural resources will be managed under the existing resource management plan pending preparation of the cultural landscape report. The surrounding agricultural lands contribute to the overall scene.

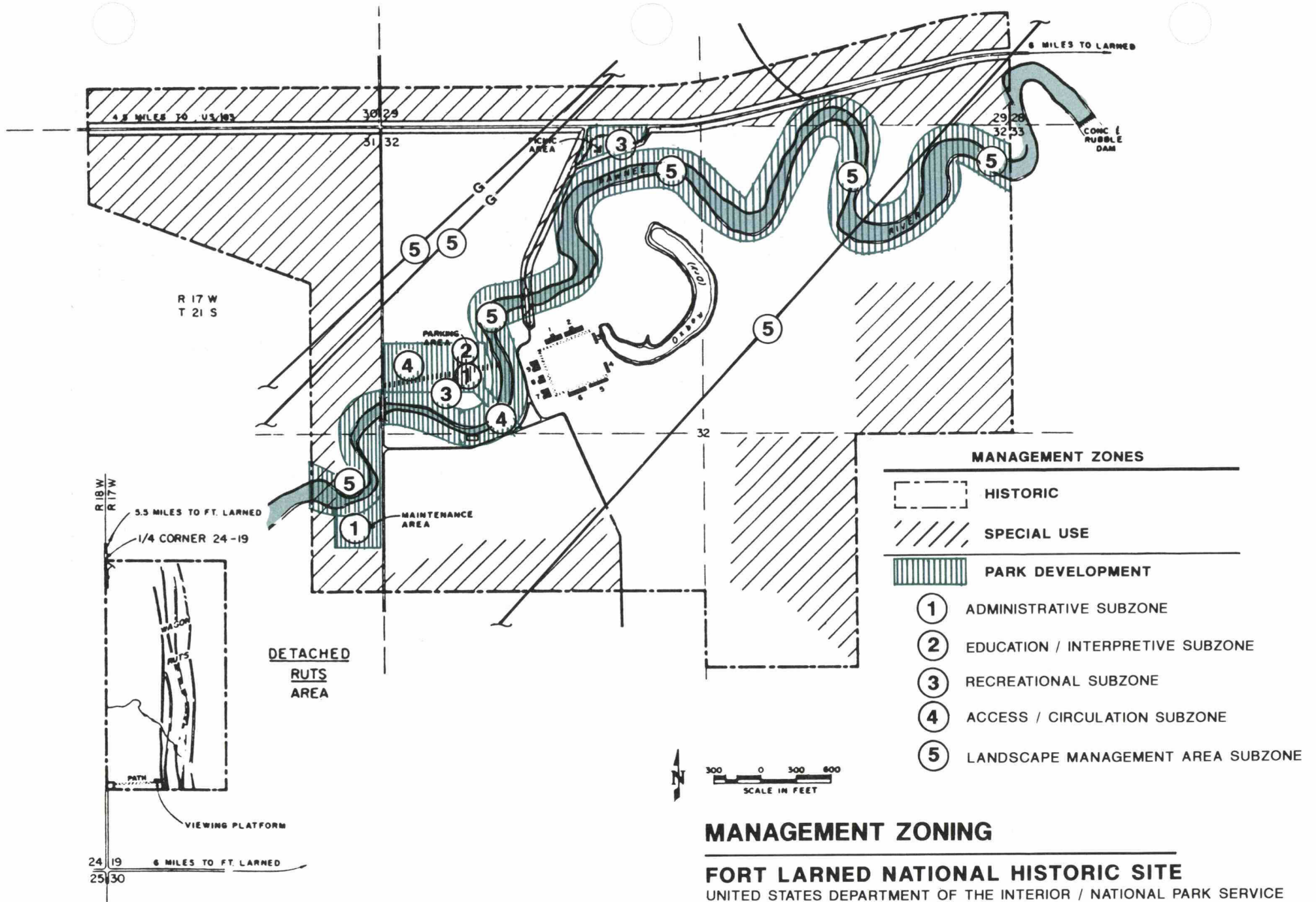
Cultural Resources

Cultural resource management at Fort Larned will focus on the protection, restoration, and maintenance of the historic resources. The cultural landscape report will determine the management of the site's landscape, especially the use of vegetation to screen modern intrusions.



PARK BOUNDARY - - - - -
 FEE OWNERSHIP - - - - -

EXISTING CONDITIONS
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MANAGEMENT ZONING

FORT LARNED NATIONAL HISTORIC SITE

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Flood Mitigation Measures

The mitigation measures available to completely protect the fort against flood all involve removing the property and resources from the floodplain. This could be accomplished in several ways:

The site could be raised above the 100-year flood level by placing the buildings on fill.

A protective levee or dike could be constructed around the property to the height of a 100-year flood plus some additional height for "freeboard" or buffer.

The resources could be relocated to a new site above the 100-year flood level.

Major impoundments could be constructed upstream to capture and hold storm runoff and release it at acceptable flow rates to avoid flooding.

None of the options listed above (and there may be more) are appropriate to the site, its historic context, and the policies of the National Park Service. Some mitigation was attempted during the fort's ranch period, but this was limited to a low levee along the south bank of the Pawnee River that offers only partial flood protection. It is not recommended that this levee be removed. Several offsite, upstream impoundments for stock ponds and water recreation have modified the runoff characteristics of the Pawnee River watershed, especially since the mid 1970s. These developments have probably reduced flood frequency by small, unquantifiable amounts. The watershed is so large, and the streambed gradient so flat, that flash floods are virtually unknown along this river. Flood conditions along the Pawnee River generally take several days of specific weather conditions to develop and are therefore predictable, providing warning several days ahead of time to those downstream.

Flood protection must begin with the acknowledgement that flooding will occur and be followed by an intended course of action. The development of a flood emergency plan includes a determination of the amount of advance notice, the distance to high ground, the level of the historic high water mark, the typical duration of the flooding, and the ability of the affected resources (and materials) to withstand immersion. The emphasis will not be on flood prevention but on the establishment of a procedure to deal with the buildings, their contents, and other objects threatened by the water. The plan must also address cleanup after the flood, which must be accomplished as soon as possible.

The plan should also include an evacuation schedule and a procedure that designates which resources will be moved to a site outside the projected flood area. The plan should designate, in priority order, the resources, equipment, and records to be evacuated. Suitable storage facilities should be arranged and reserved on an emergency need basis prior to a flood emergency. The proper equipment to move the items should also be prearranged. Responsibilities should be assigned among the park staff based upon the priorities determined for evacuation. Plans should take into account that safe areas may be as near as upper floors or attics.

In planning the cleanup, the types and amount of flood debris must be anticipated and assessed so that the necessary techniques, equipment, personnel, and cleanup schedule can be generated and in place for immediate reaction. The location of water sources for hosing out

the buildings, the need for window shutters to protect the glass against water pressure, and the installation of drains and removable floorboards for draining the water are examples of design features that must be considered. This advance planning could be incorporated with routine building repairs or restorations as the opportunities present themselves. When undertaking rehabilitation work, materials should be chosen that are able to withstand saturation for the anticipated duration of the flooding.

The protection of historic buildings in known flood areas must involve advance planning, immediate action, and rapid cleanup after the flood. To fully prevent the entry of flood water into the buildings would require the reconfiguration of the historic landscape.

Fort Larned was flooded in 1993. An incomplete flood control structure under construction as part of the county road bridge replacement west of the park allowed the high water to exit the river channel and flow north along the west side of the county road until it came to a low point. There the water crossed the road into the northwest corner of the park and flowed in a sheet to the east. The water crossed the entrance road and reentered the Pawnee River channel east of the historic core. The levee inside the park was never topped by the water, which never reached the historic core or the proposed new visitor center site. The flood control structure has since been completed and, as a result, any future floods will differ from the 1993 and other previous floods.

VISITOR USE

Access, Circulation, and Parking

Park access will be from the existing county road west of the historic core. A new entrance road will extend from the county road to a new visitor parking lot abutting the new visitor center/headquarters building. A pedestrian bridge will span the Pawnee River channel as part of a path connecting the visitor center to the historic core area. The path will enter the historic core area from the southwest and connect to the parade ground between the south company officers' quarters (HS-7) and the quartermaster's storehouse (HS-6). The existing entrance road, parking lot, fee collection station, highway bridge, handicap parking area, nonhistoric dirt roads, and asphalt trails south of the Pawnee River will be obliterated. The dirt road leading from the historic core area to the county road will be stabilized for use by fire apparatus and other vehicles during wet weather.

Interpretation and Visitor Experience

The interpretive program will be expanded to include the following expanded interpretive themes:

The road to Santa Fe (or the Santa Fe Trail) increased trade, travel, and commerce.

Through the establishment of Fort Larned and other associated military posts, the U.S. government established its authority and control and extended its influence along the Santa Fe Trail corridor.

The culture and the lifestyle of the Plains Indians was irreversibly altered by encroaching nonnative cultures.

People from a variety of cultures interacted at Fort Larned, including Anglo-Americans, African-Americans, Mexican-Americans, American Indians, and recent European immigrants (both soldiers and civilians).

Visitors to Fort Larned National Historic Site will have the opportunity to gain an understanding of the interrelationships among Fort Larned, the Santa Fe Trail, the native inhabitants of the region; the environment in which those interactions took place; and the historic integrity and authenticity of the park's surviving historic resources.

Recreational and Cultural Activities

Recreation at the park is now limited to the existing picnic area, which will be retained. Several picnic tables will be placed near the new visitor center. No other recreational uses are proposed, although there may be more living history demonstrations within the historic core.

Visitor Services

Visitor services and interpretive support facilities will be provided, mainly in a new visitor center/administration building west of the historic core area. Some facilities, including interpretive workspace, restrooms, and storm shelters, will be provided within the historic core area. The restored mess hall in the west end of barracks HS-1 will be used as a staging area for school groups. Food, lodging, and other necessities are available in Larned and will not be provided at the park.

Services at the visitor center will include information and orientation, sales, museum, theater, vending machines, restrooms, and life-safety facilities.

Interpretive support facilities housed in the new visitor center will include interpretive staff offices and workspace, a staff library, manuscript and photo files, museum collections storage and management facilities, interpretive supplies storage, and sales storage.

Administrative functions will be housed in the new visitor center/administrative building, including the staff conference room, restrooms, and breakroom. Visitor safety and resource protection will be coordinated from this building.

Orientation to the park and its features will be accomplished through directional signs and a system of waysides. It will include an introductory and four to six interpretive wayside exhibits along the 1-mile self-guiding trail to interpret the fort's missing features. A pair of wayside exhibits at the detached Santa Fe Trail ruts will interpret the trail. An orientation sign at the picnic area, possibly with either an audio station or a transmitter for the park's traveler information station broadcasts, will also be built.

Visitor Capacity

Visitor capacity will be unchanged.

Visitor Facilities to be Retained or Expanded

The existing picnic area will be retained. An additional picnic area will be developed near the proposed visitor center.

Visitor Facilities to be Removed or Restricted

Existing visitor center and administrative uses and facilities will be removed from the historic core and placed in the new visitor center/administration building. The existing entrance road, highway bridge, fee collection station, visitor parking lot, core area parking lot for visitors with disabilities, and any nonhistoric core area roads will be removed. The new entrance road and parking lot (including spaces for visitors with disabilities) will be located with the new visitor center/administration building.

PARK OPERATIONS

All administrative and operational functions will be relocated outside of the historic core area. The existing general management plan provides for housing in the commanding officer's quarters (HS-8). This amendment will discontinue that provision and open the building for interpretation.

The interpretive program will expand information on the Santa Fe Trail and the Plains Indian themes. This expanded interpretive mission will require five additional full-time employees — two permanent interpretive positions to operate facilities and give presentations, one permanent maintenance position to maintain facilities, and two full-time positions shared between maintenance and interpretation during the May through September peak visitation period.

GENERAL DEVELOPMENT

A new visitor center and administration building will be constructed west of the Pawnee River channel and the historic core area (see appendix B). All headquarters, office, and visitor facilities now housed in historic structures will be relocated to this new building except for the interpretive staff workspace and volunteer support facilities remaining in barracks HS-1. Maintenance facilities will be expanded with a 750-square-foot addition to the existing maintenance building and by adding a separate 1,200-square-foot storage structure. The water treatment and distribution system(s) will be upgraded and consolidated into one looped system to improve water quality and service. The existing dirt road leading from the historic core area to the county road will be stabilized for use by fire apparatus and other vehicles during wet weather.

VISITOR CENTER

Visitor facilities will be expanded to about 6,000 square feet in a new visitor center/administration building west of the historic core. To accommodate larger groups, such as tours and holiday crowds, the theater will be enlarged to seat 80 people. Exhibit and museum space will be increased to 3,000 square feet, and each interpretive theme will have its own area or gallery. A 760-square-foot lobby area will provide space for fee collection, sales, interpreters' work area, and visitor information and orientation. An adjacent vestibule will provide space for vending machines, seating, circulation space, a weather station, and a public phone. An adjacent exterior patio or courtyard will contain interpretive context-setting wayside exhibits. The rest of the structure will include public restrooms, book sales storage, janitor closet and storage, miscellaneous materials storage, circulation space, and a storm shelter.

ADMINISTRATION AND HEADQUARTERS

All headquarters, office, and visitor facilities now housed in historic structures will be relocated to the new building, except for the interpretive staff workspace and volunteer support facilities, which will remain in barracks HS-1. This building will require about 2,800 square feet on the first floor and will include offices; mail, fax, copier, computer, radio, and telephone equipment; a park library; collections storage; interpretive workspace; and a training room. The building will also include other staff facilities such as a breakroom, staff restrooms, janitor's closet and storage, general storage, mechanical systems room, and circulation space.

The curatorial operations and provisions for security, site, and floodproofing will require about 2,600 square feet in the basement of this building. Security considerations include exterior lighting, alarm systems, climate control, fire suppression, and storm protection (tornadoes). Site considerations will include having the physical space at the site to provide vehicle access and loading dock facilities. The site will have good visibility from the county road but will not be visible from the historic core area. Floodproofing requirements cannot be fully met at the site, so mitigation will be necessary to protect the artifacts. Flood mitigation will involve floodproofing the basement, improving drainage, raising the structure to the greatest extent possible, and providing all-weather access to a loading dock for emergency evacuation of artifacts in the event of a flood.

A service area adjacent to the headquarters will include a 720-square-foot carport, a trash receptacle, and a loading dock. The service area surface will be paved.

MAINTENANCE

Maintenance facilities will be expanded, including a 750-square-foot addition to the maintenance building and a separate 1,200-square-foot storage structure.

VEHICLE ACCESS, CIRCULATION, AND PARKING

Vehicle access to the existing picnic area will remain as it is now, from Kansas Highway 156 via turn lanes. There will be no direct vehicle access between the picnic area and the visitor center, but a pedestrian trail will be provided.

Turn lanes will be added at the intersection of the county road and Kansas Highway 156 at the northwest corner of the park to improve visitor safety. Primary vehicle access to the park will be from Kansas Highway 156, then south on the all-weather county road along the west side of the park to a point just north of the Pawnee River channel. At this point, turn lanes will be constructed to allow safe turns onto a two-lane access road leading to a new parking lot. The new visitor parking lot will be adjacent to the visitor center/administration building and will provide spaces for 50 passenger cars, including two spaces for visitors with disabilities. There will also be parallel parking for oversized vehicles and a drop zone next to the visitor center. The turn lanes, access road, and parking lot will be paved. A security gate will be installed at the county road.

For special events the grass area west of the visitor center parking lot and south of the access road will be stabilized to accommodate overflow parking.

PEDESTRIAN CIRCULATION

Pedestrian traffic will originate from the visitor center via hard-surfaced trails. Trails reinforce the interpretive message by bringing the visitor into contact with the setting and resources. The trails will link the various facilities, such as the visitor center, picnic area, and prairie, and will be designed to preserve the visual separation of modern and historic scenes and uses.

One trail will connect the visitor center to the existing picnic area at Kansas Highway 156, following the approximate northern route of the Santa Fe Trail. The trail will provide the only pedestrian access to the picnic area at Kansas Highway 156. The picnic area will accommodate large groups and individuals in a setting separated from the historic core and the visitor facilities. The separation will minimize intrusions on those who would like to enjoy the uninterrupted historic scene. From this trail, a secondary nature trail will loop into the prairie area in the northwest corner of the park where visitors will be able to see native prairie plants in a virtually intact prairie setting.

The other trail will start at the visitor center, cross the Pawnee River channel via a new pedestrian bridge, and connect to the southwest corner of the fort quadrangle. At this point the

trail will split. One branch will follow the historic road and walks of the core area. The other branch will head generally east on the Santa Fe Trail route and then will turn north around the dry oxbow to reenter the fort quadrangle at its northeast corner. This trail will present native prairie vegetation, but its main purpose will be to provide access and reinforce the visitor experience by separating the modern facilities of the visitor center from the historic resources of the core area. The vegetation along the Pawnee River will provide a physical barrier and visual screen, allowing visitors to step back in time while crossing the bridge. The main interpretive goal of this trail will be to present the history of the fort and the Santa Fe Trail. This pedestrian link will heighten the visitor experience; the interpretive message will have more impact in a setting where visitors feel contemporary with 1868-1878 Fort Larned.

BUILDING RESTORATION AND RECONSTRUCTION

The fort has a high degree of historic integrity that this plan strives to maintain. All the historic buildings will be restored to the 1868–1878 appearance, and all modern uses will be removed from the historic core. Facilities essential for life safety and resource protection may be retained within the core, but they will blend with the historic scene.

Only buildings considered key to the visitor experience will be reconstructed, provided they meet the criteria set forth in *NPS Management Policies* (1988) and the revised draft of NPS-28, *Cultural Resource Management Guidelines* (1994). The three structures considered most important to accomplish the objectives of the general management plan are the sutler's store complex, the adjutant's office, and the cavalry stables.

The reconstruction of the adjutant's office, cavalry stable, and sutler's complex will restore some critical elements and will fill in major gaps in the interpretive story. The reconstruction of these buildings will have a positive visual impact and will be essential to reestablish the architectural character of Fort Larned. They will provide the essential setting for the interpretation of key elements of the fort's history.

Sutler's Complex

Sutlers were probably the most influential economic force in the unsettled areas of the West. They were located at almost every fort and sold food, dry goods, spirits, tobacco, and notions to a captive market of officers, their families, and enlisted men. Civilians and Indians also traded at the sutler's stores. The complex served as the post community center and played a major role in the daily operations of the fort. It contained a saloon with a billiards table, mess house, and store, and was used for evening lounging. The Indian Agency at Fort Larned was headquartered in the sutler's complex, and the Indians' annuities were stored there.

The sutler's complex was central to life at the fort. Reconstruction will provide the most effective means to interpret the interrelationships of the sutler with all aspects of military life at Fort Larned. The sutler also supplied travelers and traders on the Santa Fe Trail and changed the Plains Indians' way of life through trade. As headquarters for the Indian Agency and warehouse for Indian annuities, the sutler's complex will also be the best interpretive site to explain the role of the Department of Interior and the conflict between the military and the Indian agents. Sketches and photographs show this structure from several angles. Military

records also provide information about dimensions and building materials. Archeological work has located the original site of the complex.

Adjutant's Office

The adjutant's office served as the nerve center for the entire military community. All official reports, letters, and dispatches were routed through it for the commanding officer's review and approval. The adjutant was usually the junior officer at the post. He was responsible for writing reports and letters and served as the liaison between the enlisted men and the officers. The reconstruction of this small building will provide the best setting for interpreting the adjutant's essential activities.

Cavalry Stables

This wooden structure, 247 feet by 28 feet, was built in 1867. It was designed exclusively for the use of Company A of the 10th United States Cavalry, the Buffalo Soldiers as African-American Army troops were called. This was one of only two Buffalo Soldier units in the U.S. Army at the time, the first Buffalo Soldier unit ever assigned field duty, and the only such unit ever stationed at Fort Larned. The burning of the stables in 1869 bears testimony to the racial tension between white and African-American soldiers. The fire destroyed not only most of the Buffalo Soldiers' horses, but also their ordnance and almost all of their clothing, items that they were not allowed to store in the fort's barracks.

No photograph of the stables is known to exist, but military records indicate the dimensions. A complete detailed listing of the items that were in the stables when they burned does exist. Archeological field work is needed to locate its exact original location.

If the cavalry stables are reconstructed, they may also serve as protected storage space for large artifacts, such as the two army freight wagons and the rare Rucker army ambulance. These wagons are now stored outside and are exposed to the weather. The cavalry stables will also be used to stable horses of visiting living history cavalry units and could be used in the future to stable horses used in interpretive programs.

Reconstruction of the cavalry stables will allow the interpretation of the Buffalo Soldier's role and the racial tension common in the U.S. Army at that time. Reconstructing this structure is essential to the interpretive program at Fort Larned because no stables have survived and because the stables were an essential element of the cavalry operation.

UTILITIES

The water treatment system will be upgraded and consolidated into one looped system, and water service will extend to the new visitor center/administration building. The main water treatment facility will remain in the old commissary storehouse (HS-5).

All overhead utility lines within the park boundaries will be removed, relocated, or buried in order to reduce their visual impact. New underground power and telephone lines will be

installed along the county road west of the park to serve the new visitor center/administration building and the maintenance building. These new lines will also provide service to the historic core area. Electric service to the picnic area will either remain on the north side of Kansas Highway 156, in which case this service line will be placed underground from the intersection of the county road and Kansas Highway 156 to the picnic area or a new line will be extended underground from the historic core area to the picnic area. A new natural gas line will be extended to the visitor center/administration building.

REMOVALS

Several modern features and structures will be removed from the historic core or its viewshed to restore the historic scene to the extent possible and practical. Motor vehicles, except service vehicles, will be barred from the historic core by removing nonhistoric roads, the access road from the picnic area to the parking lot for visitors with disabilities, the highway bridge, and the parking area for visitors with disabilities. The existing gravel parking lot and fee collection station will be removed, and those functions will be relocated to the new visitor center. The irrigation ditches south of the historic core will be filled and graded, and the disturbed area restored to prairie grassland.

The administrative, visitor center, and maintenance storage functions will also be removed from the historic core.

SITE WORK

Site work will include the entrance and highway signs, trail markers, interpretive waysides, and vehicle and pedestrian access improvements. A new paved access road and parking lot will be built at the visitor center. Intersection improvements, such as turn lanes, will be made at the county road intersections with Kansas Highway 156 and the park access road. New paved trails will be built, and a new pedestrian bridge will be constructed over the Pawnee River. Existing trails will be paved. The remaining site work will consist mainly of removing nonhistoric roads, the existing entrance road, parking, fee collection station, highway bridge, accessible parking, and irrigation ditches. All disturbed areas will be revegetated. The main park sign will be at the intersection of Kansas Highway 156 and the county road; the smaller park sign will be where the access road intersects the county road at the new visitor center.

ACCESSIBILITY

Laws, regulations, and NPS policies require that all programs, services, structures, and sites be made accessible to the highest degree possible and feasible to visitors and employees with disabilities. Design standards of the Architectural Barriers Act of 1968 as amended (41 CFR 101-19.6) will be followed in all new development. These are described in the *Uniform Federal Accessibility Standards* (UFAS). Comments of the Advisory Council on Historic Preservation will be obtained when they are required by section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800) prior to modifying historic structures.

A section of National Park Service *Management Policies* (chapter 5, page 14) states:

Modifications to historic structures will be made to provide the highest feasible level of physical access to historic properties for disabled persons.

The modifications must be consistent with the preservation of the properties' significant historical attributes.

Modifications for access will be designed and installed to least affect the features of a property that contribute to its significance.

Some impairment of some features will be accepted in providing access.

If access modifications to particular features will destroy a property's significance, such modifications will not be made.

To ensure accessibility to the structures at Fort Larned, wooden ramps, earth ramps, and wheelchair lifts will be installed. These will be added in the least obtrusive manner possible, according to the provisions outlined above. It may be necessary for construction materials to vary to better conform to the historic period. If the impacts of the accessibility structures are deemed detrimental to a historic structure, information on the resource will be made available at the visitor center through the use of a videotaped program. The parking lot will be relocated with the new visitor center and will be adjacent to it. Both the parking and visitor center will be west of the historic core area to reduce the distance to the historic structures and resources.

MODERN USES OF HISTORIC STRUCTURES

Modern uses of the structures will be limited. Barracks HS-1 will maintain its restrooms and storm shelter, a small interpretive workspace, and living history support facilities. The restored mess hall will become a staging area for school groups, relieving some of the congestion in the visitor center. The old commissary storehouse (HS-5) will continue to house water treatment and electrical distribution equipment. All other modern functions will be relocated.

BOUNDARY ADJUSTMENTS AND LAND PROTECTION

Development will remove modern intrusions from the historic core area and visually screen it using the vegetation along the Pawnee River. If it becomes possible to acquire visual easements to the south of the fort within the viewshed of the historic core area, such opportunities should be carefully considered. Because Fort Larned is only 30 acres below its legislated maximum size of 750 acres, there is not enough room left to effectively expand the boundary to protect the southern viewshed. Although not an issue for this plan, the acquisition of scenic easements to the south should be explored in the next revision of the land protection plan, and recommendations should be made to accomplish any desired viewshed protection. In the meantime the park should continue to work with adjacent landowners to develop cooperative agreements or other mutually satisfactory arrangements to avoid any need for boundary adjustments and easement acquisitions.

PLAN IMPLEMENTATION

LEGISLATIVE ACTIONS REQUIRED TO PERMIT ACTION TO OCCUR

If a boundary adjustment is necessary, as in the case of any visual easement acquisition, the boundary change land acquisition funds will have to be legislatively approved.

ADDITIONAL STUDIES REQUIRED

This plan requires updates of historic furnishings reports and historic structures reports as well as a cultural landscape report, and archeological survey and data recovery program. It also requires historic structure reports and historic furnishings reports for the sutler's store complex, adjutant's office, and the cavalry stable. These updates, reports, and surveys should be accomplished prior to design and construction to ensure compliance with all regulations.

While a systematic section 110 archeological survey has not been completed at Fort Larned, a great deal has been learned about its resources through extensive archeological and documentary investigation. An archeological overview and assessment will be prepared to identify gaps in the database and to develop an overall management and treatment plan for the fort's archeological resources.

PHASING

There are advantages to phasing this plan. Two phases should be adequate, but three may be required to maintain a credible visitor experience during any restoration or development activities. The recommendations are intended to be flexible. Work can be accomplished in any order that accommodates current conditions and requirements.

The additional studies, maintenance expansion, construction of the visitor center/administration development (including curation storage, roadway and access improvements), and all utility work are recommended for phase 1.

Accessibility measures, the wooden lean-to on the old commissary (HS-5), historic structure restorations, facility and function relocations, trail work and trail markers, and removals are recommended for phase 2.

Phase 3 will include revegetation and any incomplete items from phase 2.

OPERATING COSTS

Expansion of the interpretive mission and the increase in facilities to operate and maintain will require five additional full-time equivalency employees and added annual base funding of \$165,000 (1993 dollars).

TABLE 1: GENERAL MANAGEMENT PLAN — DEVELOPMENT COST ESTIMATE

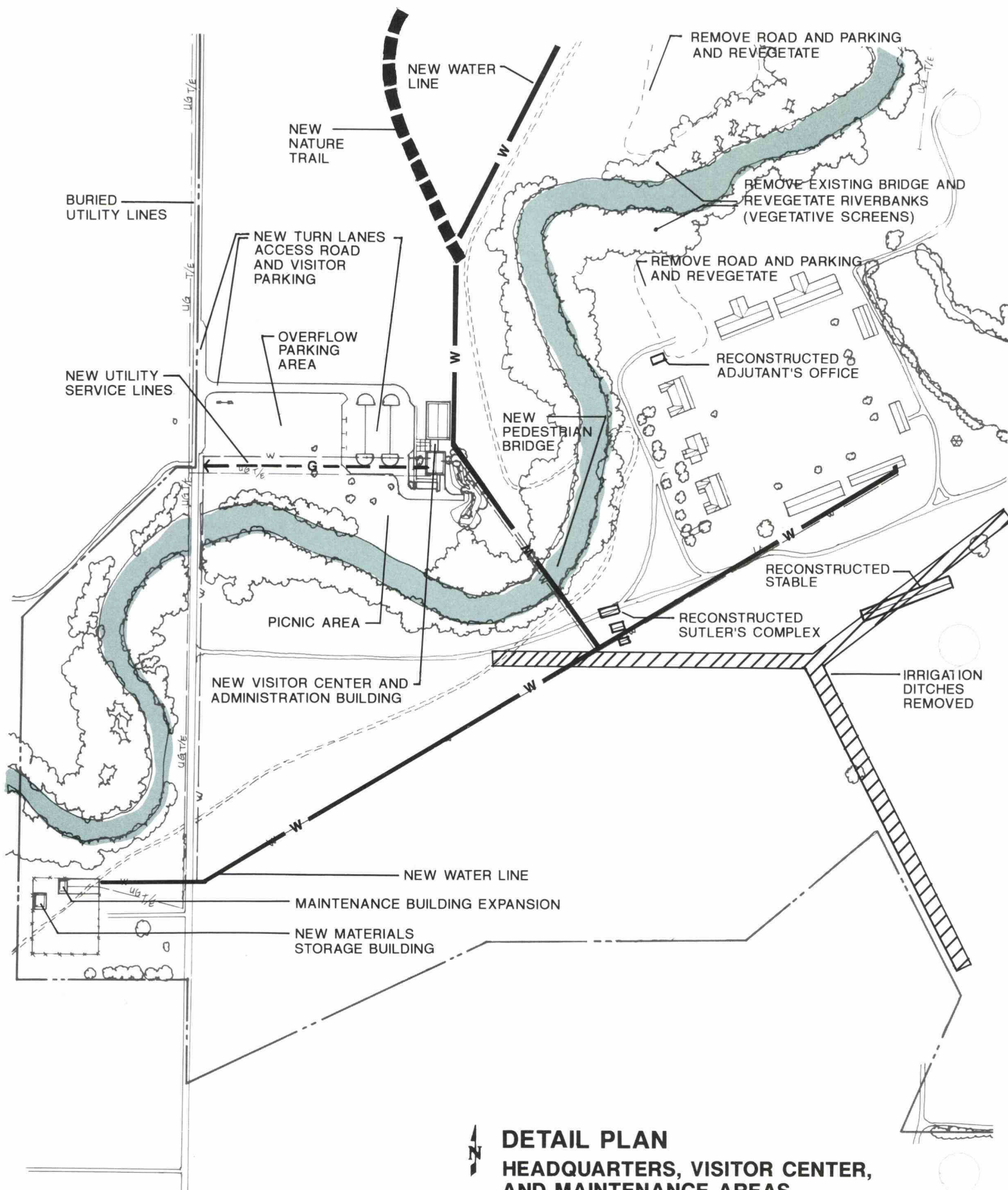
Development Item	Quantity and Unit	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
PHASE 1				
Studies Required¹				
Historic furnishings report updates Commanding officer's quarters HS-8	1s			35,000
Historic structure report updates				
Shops building HS-3 - interior only	1s			35,000
New commissary HS-4 - interior only	1s			35,000
Old commissary HS-5 - interior only	1s			35,000
Quartermaster's storehouse HS-6 - interior only	1s			35,000
Commanding officer's quarters HS-8 - interior only	1s			35,000
Officer's quarters HS-9 - interior only	1s			35,000
New historic structure/furnishings reports				
Sutler's store complex	1s			120,000
Adjutant's office	1s			60,000
Cavalry stable	1s			95,000
Cultural landscape report	1s			65,000
Archeological survey/investigations	8 ac.			112,000
Archeological data recovery program				
Pedestrian bridge crossing	1s			100,000
Sutler's store complex	1s			100,000
Adjutant's office	1s			100,000
Cavalry stable	1s			10,000
Structural Development				
New visitor center and administration building	8,730 sf	2,516,000	480,200	2,996,200
Covered parking structure for three cars	720 sf	33,000	6,300	39,300
Visitor center furnishings	1s	377,400	72,000	449,400
Interpretation				
museum exhibits	1s	902,000	172,100	1,074,100
audiovisual	1s	306,600	58,500	365,100
waysides	12 each	93,500	17,800	111,300
historic furnishings	1s	410,000	78,200	589,400
Possible solutions to accessibility concerns				
earth ramp to barracks HS-1	1s	700	100	800
earth ramp to barracks HS-2	1s	700	100	800
barracks boardwalk connection HS-1 to HS-2	250 sf	4,900	900	5,800
earth ramp to shops building HS-3	1s	700	100	800
wood porch at shops building HS-3	280 sf	7,000	1,300	8,300
wheelchair lift to new commissary HS-4	1s	9,800	1,900	11,700
earth ramp to old commissary HS-5	1s	700	100	800
earth ramp to quartermaster's storehouse HS-6	1s	700	100	800
wheelchair lift to officer's quarters HS-7	1s	9,800	1,900	11,700
wheelchair lift to commanding officer's quarters HS-8	1s	9,800	1,900	11,700
wheelchair lift to officer's quarters HS-9	1s	9,800	1,900	11,700
New curation storage and work area	2,560 sf	855,200	163,200	1,018,400
Add wooden lean-to to old commissary HS-5	546 sf	21,500	4,100	25,600
Restore remainder of quartermaster's storehouse HS-6	6,100 sf	1,198,700	228,800	1,427,500
Restore officer's quarters HS-9 to the historic period	3,651 sf	717,400	136,900	854,300
Reconstruct sutler's store (26' x 50', stone)	1,300 sf	255,500	48,800	304,300
Reconstruct sutler's mess room (21½' x 34½', frame)	742 sf	116,600	22,300	138,900
Reconstruct sutler's residence (16½' x 30½', frame)	623 sf	102,000	19,500	121,500

Development Item	Quantity and Unit	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
Furnish sutler's complex	ls	213,800	40,800	254,600
Reconstruct adjutant's office (15' x 30', frame)	450 sf	73,700	14,100	87,800
Furnish adjutant's office	ls	18,400	3,500	21,900
Reconstruct cavalry stable (247' x 28')	6,916 sf	679,500	129,700	809,200
Maintenance building addition	750 sf	127,700	24,400	152,100
New maintenance storage building	1,200 sf	212,200	40,500	252,700
Site Development				
Construct paved access road and visitor parking	5,700 sy	358,400	68,400	426,800
Construct intersection improvements	1,750 sy	126,100	24,100	150,200
Construct pedestrian bridge (10' wide x 200' long)	2,000 sf	131,000	25,000	156,000
Install signs				
new large entrance sign	1 each	20,000	3,800	23,800
new small entrance sign	1 each	10,000	1,900	11,900
directional signs to ruts site	5 each	1,600	300	1,900
Utilities				
New water filtration system	ls	400,000	76,300	476,300
New water distribution lines	7,100 sf	306,000	58,400	364,400
Bury onsite overhead utility lines	5,800 lf	159,600	30,500	190,100
New underground electric line (along county road)	4,100 lf	107,400	20,500	127,900
New underground telephone line (along county road)	4,100 lf	91,300	17,400	108,700
New natural gas service line	600 lf	17,300	3,300	20,600
Removals				
Obliterate and reclaim irrigation ditches	15,600 cy	143,100	27,300	170,400
Phase 1 Subtotal		11,157,100	2,129,200	14,293,300
PHASE 2				
Structural Development				
Restore barracks HS-1 to historic period	7,961 sf	1,512,200	288,600	1,800,800
Restore remainder of new commissary HS-4 to historic period	1,930 sf	316,000	60,300	376,300
Remove curation/collections from new commissary HS-4	1,930 sf	93,500	17,800	111,300
Restore remainder of old commissary HS-5 to historic period	1,208 sf	229,500	43,800	273,300
Restore commanding officer's quarters HS-8 to the historic period	3,155 sf	599,300	114,400	713,700
Remodel historic core support facilities (barracks HS-1)	700 sf	137,600	26,300	163,900
Security system for historic buildings	46,100 sf	241,600	46,100	287,700
Site Development				
Pave existing trails (6' wide, asphalt)	5,000 lf	65,500	12,500	78,000
Construct interpretive trails (6' wide, asphalt)	2,700 lf	42,400	8,100	50,500
Install signs, trail markers	10 each	3,400	600	4,000
Removals				
Remove and obliterate nonhistoric roads in the historic core	2,500 sy	32,800	6,300	39,100
Remove and obliterate entrance road (asphalt)	6,700 sy	105,300	20,100	125,400
Remove and obliterate gravel parking lot	11,100 sy	174,500	33,300	207,800
Remove and obliterate entrance road bridge	1,350 sy	35,400	6,800	42,200

Development Item	Quantity and Unit	Gross Construction Costs	Advance and Project Planning Costs	Total Project Costs
Remove and obliterate fee collection station	100 sf	1,300	200	1,500
Phase 2 Subtotal		3,590,300	685,200	4,275,500
PHASE 3				
Site Development				
Revegetation	10.0 acres	52,400	10,000	62,400
Phase 3 Subtotal		52,400	10,000	62,400
GRAND TOTAL - ALL PHASES		14,799,800	2,824,400	18,631,200

sf = square feet, lf = linear feet, ls = lump sum, ac = acre

1. The studies required prior to design and construction activity do not require the addition of any advance and project planning funding; therefore no such funds have been included in the project cost totals.

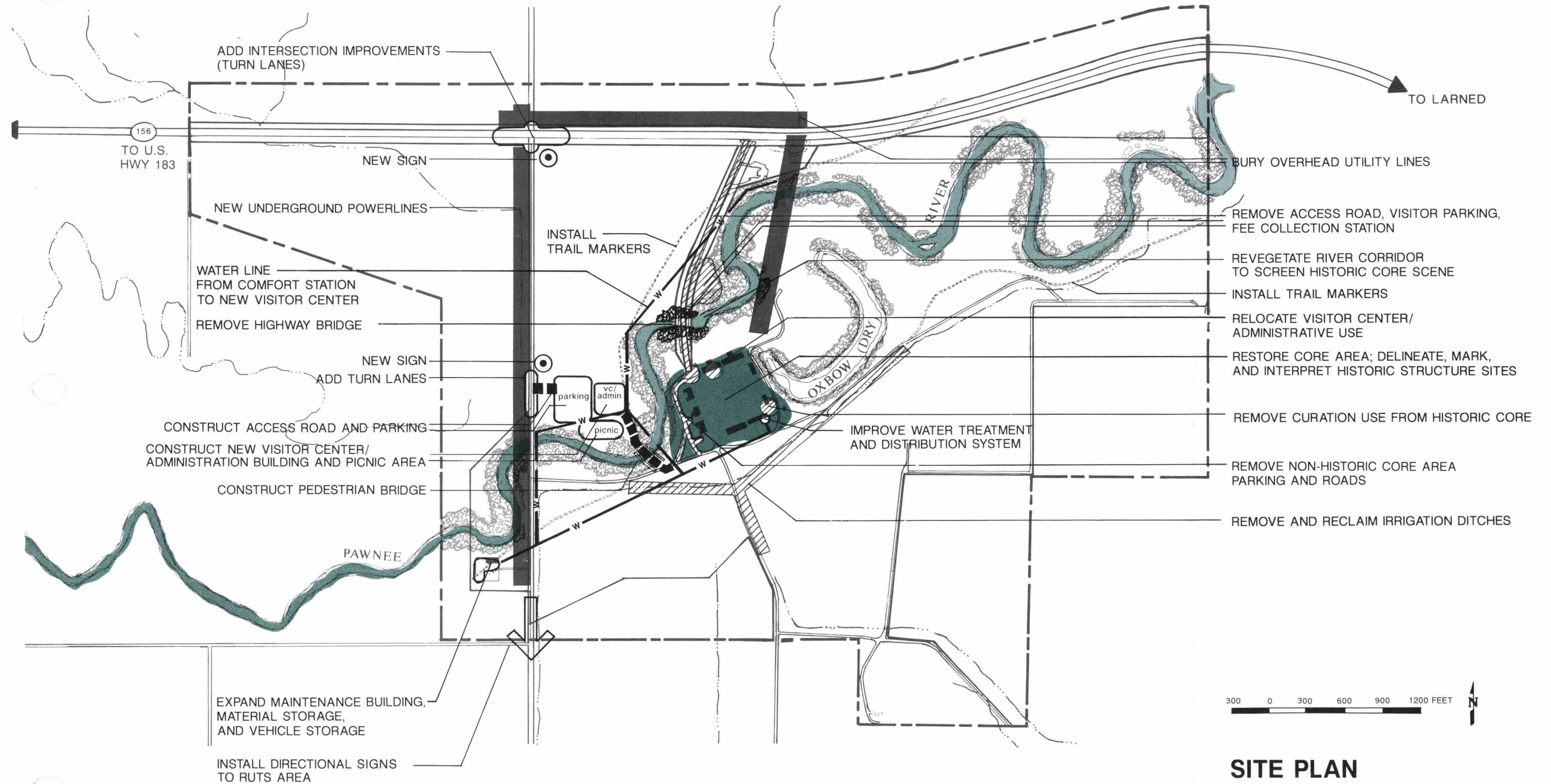


FORT LARNED NATIONAL HISTORIC SITE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

DSC-425-20.016B-NOV 94

ON MICROFILM



THE AFFECTED ENVIRONMENT



NATURAL RESOURCES

PHYSICAL SETTING

Fort Larned National Historic Site is located in Pawnee County in south-central Kansas approximately 125 miles northwest of Wichita and 60 miles south of Hays. Larned, the county seat, is approximately 6 miles east of the site. Kansas Highway 156 is the principal means of public access.

The enabling legislation for Fort Larned limits the park to a total of 750 acres. Current park acreage totals 718.39 acres. Of that, 410.46 acres are owned in fee by the federal government, including the 44-acre detached Santa Fe Trail ruts area. The state of Kansas owns about 38.73 acres within the park boundary, most of which is right-of-way for U.S. 156. The remaining 269.2 acres are privately owned, but the federal government has visual easements on that acreage.

The 718.39-acre national historic site contains two units: (1) the historic fort, on the banks of the Pawnee River about 8 miles above its confluence with the Arkansas River, and (2) the smaller (44.4 acres) Santa Fe Trail ruts area located approximately 6 miles south of the fort.

The park is slightly more than 2,000 feet above sea level, and the land is nearly flat. The major natural features consist of the river, streamside woodlands, an old oxbow of the river, and prairie remnants. Total relief (range of elevation difference) is less than 10 feet, except at the streambanks. The Santa Fe Trail ruts area is located in gently rolling upland at about 2,100 feet in elevation. Total relief there is approximately 30 feet.

The major natural forces are from phenomena such as floods and severe storms, including tornadoes. These threats are common in this region. Existing buildings have incurred major damage from high winds (which may have been tornadoes) at least three times since the 1880s. Given the frequency, severity, and erratic nature of tornadoes on the Great Plains, they must be considered a threat to cultural resources. There is no way to fully protect historic structures, records, and artifacts onsite, but underground storage may offer the best protection for original or irreplaceable artifacts and records. Duplicate copies of records, stored in separate locations, are also advisable.

The entire historic core area of the fort and nearly all of the park's other lands are within the 100-year floodplain of the Pawnee River. The fort and facilities were purposely built in this location for logistic and strategic reasons; therefore, any other setting for the fort would not be historically correct.

FLOODPLAINS

The national flood insurance program has not surveyed the land within the federally owned national historic site, but in 1971 all land adjacent to Fort Larned National Historic Site was identified as being within the 100-year floodplain. The Santa Fe Trail ruts area is outside the floodplain.

THE AFFECTED ENVIRONMENT

The floodplain along the Pawnee River drainage has been modified since the early 20th century. Portions of the riverbank have been diked, altering and channeling stream flow. In the 1920s a concrete dam was constructed approximately .25 mile downstream from the historic site. The dam resulted in a periodic water impoundment extending as far as 6 miles upstream and has caused sedimentation of the streambed to depths of 12 to 14 feet, raising the water surface during times of flow. Upstream irrigation diversions, livestock ponds, and flood control projects constructed since the mid 70s have also altered the Pawnee River floodplain. These drainage modifications have caused an unknown change in the extent of the floodplain and its probable impact on Fort Larned National Historic Site.

The national flood insurance program is in the process of redelineating the Pawnee River floodplain. The National Park Service Water Resources Division has analyzed the hydrology of the Pawnee River (see appendix A).

WETLANDS

No known wetlands exist within the Santa Fe Trail ruts area. The U.S. Fish and Wildlife Service has identified wetlands along the Pawnee River within the main unit of Fort Larned National Historic Site. The National Wetlands Inventory lists flooded, intermittent, riverine wetland within the streambed of the Pawnee River. Within the high water zone, located near the northeast corner of the historic site, is a small area of temporarily flooded, shrub-scrub palustrine wetland. In addition, near the west boundary of the historic site and within the Pawnee River high water zone, there is a temporarily flooded, forested palustrine wetland.

A diked and impounded oxbow to the east of the fort, once used as a reservoir for irrigation and as a stock pond, was pumped full of water from the Pawnee River until 1974. This dry oxbow area is identified as a unconsolidated shore and temporary flooded palustrine wetland.

SOILS

The main unit is dominated by nearly level Bridgeport silt loam soils on the low terraces of the Pawnee River. New Cambria silty clay loam, Hord silt loam, and Uly silt loam comprise the remaining soils of the historic site.

The Santa Fe Trail ruts area is comprised primarily of upland soils of Harney silt loam of 0% to 1% slope. The remainder consists of Harney silt loam of 1% to 3% slope and Harney-Uly silt loam complex of eroded 3% to 6% slopes.

PRIME AND UNIQUE FARMLANDS

All the soils in Fort Larned National Historic Site have been identified by the Soil Conservation Service as prime farmland.

CLIMATE

The climate of the area is classified as typical interior continental type with daily and annual variations in temperature and precipitation, cold winters, warm summers, and a long growing season. Spring and fall are usually short.

The annual average temperature is 56°F, with a summer average of 78°F and a winter average of 34°F. Extreme temperatures of 114°F and -24°F have been recorded. Summer maximum temperatures are usually about 94°F and winter minimum temperatures average 22°F.

Precipitation fluctuates both seasonally and annually. Annual precipitation averages about 24 inches, of which about 75% falls during the growing season from April through September.

Wind is common, and there are only a few calm days each year. Average wind speed is 14 miles per hour, but velocities of 20 mph and above are common throughout the year. Intense spring and summer thunderstorms with severe winds and tornadoes do occur in the area.

VEGETATION

Historically, Fort Larned consisted of two vegetation community types — prairie grasslands and streamside woodlands.

The original prairie plant community was primarily a two-layer structure of bluestem-grama grasses. Species were probably big bluestem, little bluestem, sideoats grama, western wheatgrass, western ragweed, lead plant, red three-awn, buffalo grass, Junegrass, blazing star, butterfly milkweed, and others.

Original woodlands were limited to streambanks because of the dry prairie soils. The post surgeon described the woodland belt as well populated with elm and boxelder.

The vegetation communities of today bear little resemblance to the vegetation of the historic period. With the exception of the trail ruts detached area, the native prairie has long since been broken up and cultivated while the native woodlands were felled for firewood for the fort.

In 1878 the fort was abandoned, and in 1884 the land was sold to private ranching interests. With the exception of the riverbanks, the trail ruts area, and the land immediately adjacent to the fort, most of the land was gradually converted to cultivated cropland until acquisition by the federal government in 1964. Extensive land leveling was done in 1956 to facilitate irrigation. These actions greatly altered the natural vegetation and established a predominantly nonnative species community.

To re-create the historical prairie, a reclamation program was initiated in 1969. Blue grama and buffalo grass were planted along with switchgrass, big and little bluestem, western wheatgrass, side oats grama, Indian grass, and others. At present, prairie vegetation restoration is partially completed. Weedy grasses and forbs still dominate some portions of the historic site, and several areas are colonized by noxious weeds or undesirable nonnative plants such as field

THE AFFECTED ENVIRONMENT

bindweed, *Kochia*, bermuda grass, smooth brome, puncture vine, sour dock, foxtail, dandelion, and others.

The present riparian woodland species composition differs from historical times because of agricultural use of the land and introduction of nonnative species. The woodland community now includes eastern red cedar, cottonwood, poison ivy, tamarisk, green ash, willow baccharis, hackberry, willows, pines, and others.

WILDLIFE

Bison, pronghorn, and gray wolves were historically recorded at Fort Larned but are no longer in the area. White-tailed and mule deer frequent the area. Smaller mammals such as coyote, bobcat, badger, raccoon, opossum, big brown bat, striped skunk, black-tailed jackrabbit, eastern cottontail, fox squirrel, thirteen-lined ground squirrel, and various other rodent species live at Fort Larned or in the immediate area. The black-tailed prairie dog inhabits the Santa Fe Trail ruts area.

No extensive bird survey has been completed at Fort Larned, but identified avian species include numerous species of waterfowl, shorebirds, raptors, and songbirds. Migrant species are plentiful and varied and include Canada geese, sandhill cranes, and green-winged teals. Resident species include blue jays, American crows, ring-necked pheasants, turkeys, black-billed magpies, white-crowned and house sparrows, black-capped chickadees, great horned owls, and others. Seasonal residents include American kestrels, Swainson's hawks, northern orioles, burrowing owls, brown thrashers, red-headed woodpeckers, American robins, mourning doves, common nighthawks, blackbirds, lark sparrows, western meadowlarks, and others.

No survey or species list for either amphibians or reptiles is available for the Fort Larned area. Amphibian species known to inhabit similar areas and habitats in Pawnee County are plains spadefoot, great plains spadefoot, and plains leopard frog. Reptile species known to exist in the county are ornate box turtle, snapping turtle, prairie-lined racerunner, western hognose snake, eastern yellowbelly racer, bullsnake, prairie kingsnake, and northern water snake. Bull snakes are commonly seen in and around the historic buildings. The site is in the known range of two pit vipers, the prairie rattlesnake and the massasauga, but neither species has been identified in the immediate area.

At Fort Larned aquatic habitats are ephemeral. The Pawnee River contains sufficient water to support fish only during the spring and early summer. Although no survey has been conducted for fish species, red and sand shiners, fathead and bullhead minnows, carp, black bullhead, and channel catfish have been identified in Pawnee County. Large mussels are another aquatic species typically found in the heavily silted Pawnee River habitat.

THREATENED AND ENDANGERED SPECIES

No threatened or endangered animal or plant species are known to be present at Fort Larned. Six federally listed endangered or threatened species of birds have been documented in Pawnee County.

The endangered bald eagle (*Haliaeetus leucocephalus*) is an occasional winter visitor to Pawnee County. Fort Larned provides no suitable habitat for the bald eagle, because wintering eagles are dependent upon fish and waterfowl in large bodies of water for feeding. The endangered eskimo curlew (*Numenius borealis*) has not been recorded in Kansas since 1902. During spring migration, the eskimo curlew feeds in plowed fields, heavily grazed pastures, burned grasslands, and prairie dog towns. The endangered least tern (*Sterna antillarum*) may migrate through Pawnee County. The endangered peregrine falcon (*Falco peregrinus*) has also been recorded in Pawnee County as a migrant and occasional winter visitor. Fort Larned has no choice habitat. The falcon prefers marshes, lakes, and rivers where there is an ample prey base. The endangered whooping crane (*Grus americana*) is known to occasionally migrate through Pawnee County. It is unlikely to use Fort Larned habitat because it prefers marshes and fields to rest and feed on invertebrates. Quivera National Wildlife Refuge, approximately 35 miles east of Fort Larned, has been designated as critical habitat for the whooping crane.

The threatened piping plover (*Charadrius melodus*) may be a rare migrant in Pawnee County. Piping plovers are unlikely to be seen at Fort Larned because they prefer sparsely vegetated shorelines of shallow lakes, salt flats, open marshes, and river sandbars.

An additional five animal species are listed as threatened by the Kansas Department of Wildlife and Parks and the Natural Heritage Program. The eastern spotted skunk (*Spilogale putorius interrupta*), eastern hognose snake (*Heterodon platirhinos*), Kansas glossy snake (*Arizona elegans*), snowy plover (*Charadrius alexandrinus*), and white-faced ibis (*Plegadis chihi*) are known to have once existed in Pawnee County.

AIR QUALITY

Air quality for Fort Larned National Historic Site and Pawnee County is thought to be good, but site monitoring locations or data for the general area could not be located.

WATER QUALITY AND RESOURCES

The Pawnee River has a surface channel capacity of 4,000 cubic feet per second (cfs). Available records indicate extreme flows vary from flood stage (16,300 cfs) to no recordable flow. In the past few years the Pawnee River at Fort Larned has generally flowed on an ephemeral basis — mostly during the spring and early summer. The river water generally has numerous dissolved minerals and carries a heavy silt load. A concrete dam downstream from the boundary impounds water within the channel, but generally the channel dries in early summer. The riverbed above the dam and adjacent to the fort is dry for most of the year.

Groundwater quality is considered poor for human consumption because of excessive amounts of manganese. Three wells within Fort Larned currently supply water for all uses, including drinking and fire suppression. Drinking water is further degraded by corroded pipes.

CULTURAL RESOURCES

HISTORIC BACKGROUND

Fort Larned was established by the U.S. Army in 1859 as Camp on the Pawnee Fork; it was renamed Camp Alert the following year. In 1860 the Army relocated the fort to its present site 3 miles west of the original location and renamed it in honor of the paymaster general, Colonel Benjamin F. Larned.

The post was established as a result of Indian hostility to the increasing traffic on the Santa Fe Trail. The fort's mission was to protect the Kansas portion of the trail and, in concert with Fort Lyon in Colorado and Fort Union in New Mexico, it was a principal element in a system of posts and patrols intended to ensure the safety of travel, commerce, and the mails.

For more than a decade Fort Larned served as a base of operations against the Indians on the Central Plains, specifically the Cheyenne, Kiowa, Arapaho, and Comanche tribes. From 1861 to 1868 the fort was the focus of a program of peaceful conquest, acting as the Bureau of Indian Affairs distribution point for annuities granted to tribes that had signed the Fort Wise Treaty of 1861. In 1864 Fort Larned became the agency for the Kiowa and Comanche tribes, and the following year for the Cheyennes, Arapahos, and the Kiowa-Apaches. The agency was abolished in 1868 when the tribes were moved to reservations in Oklahoma. The fort became a scene of significant cultural diversity with the daily interaction of Anglo-Americans, African-Americans, Mexican-Americans, and American Indians.

During the 1870s troops from the post provided protection for the construction of the Atchison, Topeka, and Santa Fe Railroad. After completion of the line through Kansas in 1872, the fort provided police service in the area until 1878, when the fort was abandoned. A guard detachment from Fort Dodge protected the property until 1883 when the Fort Larned military reservation was declared surplus and its custody transferred to the General Land Office, Department of the Interior.

Fort Larned underwent a major construction program in 1867 and 1868. Although only nine of the historic structures survive, they are among the most important. They comprise all but one of the original 10 stone structures that defined the parade ground quadrangle and are good examples of American military post architecture during the Victorian period. The remains of virtually all other structures built by the Army survive today as archeological features. These archeological remains also represent facets of the fort's history and contribute to its significance as a historic resource.

Fort Larned was sold at auction by the General Land Office in 1884 and had several owners over time, most of whom used the site as headquarters for agricultural operations. The fort site, including the buildings, was purchased by E. E. Frizell in 1902 and was owned by his family until the national historic site was established in 1964. During the Frizell ownership the surviving structures were extensively altered and used as the headquarters complex for a major ranching operation.

The National Park Service studied Fort Larned, found it to be nationally significant, and designated it as a national historic landmark in 1961. On August 31, 1964, the president

signed Public Law 88-541 authorizing the establishment of Fort Larned National Historic Site. The Historic American Buildings Survey recorded the nine surviving structures in 1965.

Fort Larned is significant not only because of the role it played in the nation's history but also because it still has structures dating from the historic period. The nine structures comprising the historic core of the site are an important resource and were the reason the park was established. Fort Larned is listed on the National Register of Historic Places and is therefore afforded the procedural protection of section 106 of the National Historic Preservation Act (80 stat. 915). Compliance with 36 CFR 800, Executive Order 11593, and the Antiquities Act of 1906 is also required.

HISTORIC APPEARANCE

When Camp Alert was moved in 1860, it was reestablished on the south bank of the Pawnee River and renamed Fort Larned. The Army initiated a construction program in an area measuring about 800 feet by 1,180 feet. During its military history Fort Larned has consisted of at least 50 structures, some of which were temporary.

The earliest structures were primitive. In 1860 troops erected seven structures of consequence — an adobe quartermaster's storehouse and an adobe commissary storehouse (immediately north of the site of the present stone barracks); a partitioned officers' quarters of adobe and wooden posts called "pickets" (immediately south of the site of the present stone quartermaster's storehouse); a picket guardhouse (on the eastern fringe of the post, next to the dry oxbow); two adobe laundress' quarters (immediately north of the two storehouses near the river); and an adobe hospital (near the angle formed by the junction of the river and the oxbow). The troops also built primitive structures. Their quarters and the post bakery were dugouts along the riverbank. A small adobe meat house, a log and canvas carriage house, and a three-room picket shop building were built along the river northwest of the present officers' quarters. The development was supplemented with miscellaneous tents and hovels that constituted Fort Larned's physical plant during its early years. These early structures were better suited to the arid southwest than to Kansas, particularly since most of them were roofed with earth-covered brush. Although they rapidly deteriorated, they established the basic character of the fort.

Fort Larned was improved when officials recognized its physical dilapidation and its tactical value. The first improvement was a stone blockhouse (southeast of the southeast corner of the present parade ground), constructed in 1864-65. At about the same time a line of field trenches was dug across the southern flank of the post from the river to the dry oxbow. Such traditional fortifications were a short-lived curiosity most evident in military forts of that time in Kansas. The trenches reflected the experience of officers during the Civil War, a conflict between armed forces capable of assaulting strong points. The Plains Indians, however, were insufficiently motivated and equipped (and too few in number) to engage in such assaults, and they rarely attacked military posts. Fort Larned and other forts of its time were quarters and storage facilities, rather than true forts, and they established patterns of site planning still followed in American military posts.

Despite debate over whether to move the fort again, plans were initiated in 1866 for an improvement to the post's physical plant. During the summer and fall the troops constructed

a stone commissary storehouse (the easternmost of two structures now on the south side of the parade ground) that was completed and subjected to alterations the next year. Its walls were originally raised to a height of about four feet, and at that level a series of rifle ports were built in as the walls were raised to their full height. This fortification effort supported General William Hancock's decision to abandon and fill in the entrenchments, which were difficult to maintain and so long that more than 1,000 soldiers would have been required to man them in the event of a serious attack.

During 1867 and early 1868 a civilian work force (averaging 191 men) under the supervision of an Army quartermaster undertook a comprehensive construction program that was to provide six frame buildings, nine stone buildings, alterations to two existing stone structures, the blockhouse, and the commissary storehouse. After a reduction of funds in early 1868, only a minor amount of work — including the addition of kitchen wings to the two barracks, completion of the new commissary, and the addition of porches to the officers' quarters — had to be completed by enlisted men under the supervision of a second lieutenant. One stone structure originally proposed, a new guardhouse, never progressed beyond its foundation.

In 1869 the cavalry stables (located south of the present commissary and quartermaster's storehouses) burned to the ground. At about the same time an extensive cleanup program was undertaken to remove construction debris and the remains of the surplus original structures from the fort.

From the end of 1869 until the close of its military occupation, Fort Larned's appearance remained much the same. It included ten structures around the parade ground (the existing nine structures of stone plus the frame adjutant's office at the northwest corner), together with the foundations of the uncompleted guardhouse on the east side of the parade ground; the blockhouse (converted to a guardhouse); the two laundress' quarters and the hospital north of the barracks; a hospital steward's quarters near the northeast corner of the east barracks hospital; a washhouse near the northwest corner of the west barracks; an icehouse next to the river west of the commanding officer's quarters; the sutler's corral and stables next to the river south of the icehouse, with three sutler's buildings south of them; and the new sutler's store about 100 yards south of the quartermaster's storehouse. The original cemetery was moved in 1869 from the island within the oxbow to a site north of the post on the opposite side of the river. The oxbow island was used for storage of wood, hay, and materials. A scattering of corrals, teamsters' quarters, miscellaneous structures, and a dump completed the scene.

After its abandonment Fort Larned gradually deteriorated — aided by the scavenging of materials from the structures. For the next 80 years, it became a ranchstead. New structures, including silos and corrals, were added, and all but the nine surviving stone structures around the parade ground were demolished. Those nine structures were altered as necessary for utilitarian purposes. The two barracks buildings became a single large barn covered with an enormous gambrel roof. Fences, shade trees, and decorative vegetation were added. By 1960 the ranch evinced stylish and comfortable prosperity in an unusual layout provided by the Army's site planning and architecture.

Since the late 1960s a program has been underway to restore the military appearance of Fort Larned. During the 1960s most modern ranch structures were demolished and the detritus of the ranching period removed. Today there remain nine historic stone buildings, the

reconstructed blockhouse, and the not yet totally defined subsurface remains of the army and ranching periods.

EXISTING HISTORIC STRUCTURES

Nine historic structures, all built of stone and all but one constructed during the 1867-1868 construction program, survive from the period of Army occupancy at Fort Larned. They are described below in the order of the historic structure numbers. The sequence is clockwise around the parade ground, beginning at the northwest corner.

HS-1, Barracks

This T-shaped building was constructed in 1867-1868, and the kitchen wing was added in 1868. The main structure measures 150 feet by 43 feet. The kitchen wing measures 36 feet by 34 feet and projects from the center of the north (rear) facade. The structure had coursed rubble stone masonry walls and a gabled roof. A rubble stone masonry partition, without openings, divided it into eastern and western halves. The partition was continued without openings in the kitchen wing. The structure provided two separate company quarters under the same roof.

During civilian occupancy the structure was converted to use as a barn. In 1921 barracks HS-1 and HS-2 were converted into a single barn. The walls were raised (in salvaged stone) about five feet, the gables removed, and a large gambrel roof (reputedly the largest in Kansas, and possibly one of the largest in the country) was constructed, partially from materials salvaged from the original roofs. In 1973-1974 restoration of the exterior of barracks HS-1 to its military appearance was accomplished. Modern interior restoration of this structure was completed in February 1977, permitting the structure to be used for offices, audiovisual interpretation, museum exhibits, and public restrooms.

HS-2, Barracks

This T-shaped building is the easternmost of the two structures on the north side of the parade ground. It was constructed in 1867-1868 and the kitchen wing was added in 1868; barracks HS-2 and HS-1 are nearly identical. The western wing of barracks HS-2 is restored as an infantry barracks of the historic period. The larger eastern wing was intended for the one company of cavalry stationed at the post from April 1867 to January 1869, but in 1871 that wing was converted to use as a hospital. The east wing barracks room was partitioned into two wards, and counters, shelving, and other medical storage facilities were installed in the various rooms.

Other construction details, interior and exterior finish, alterations, and subsequent exterior restoration are the same as for barracks HS-1.

HS-3, Shops Building

This rectangular building is the northernmost of the two structures on the east side of the parade ground. It was constructed in 1867-1868. It measures 84 feet by 30 feet and has walls

of coursed rubble stone masonry, gable-roofed at the ends. Because of a great number of post-military alterations, it has been difficult to identify all aspects of the structure's military appearance. On the basis of historical, archeological, and architectural research, the building apparently fronted to the east, away from the parade ground. There was a brick and stone chimney at each end of the structure and one at the partition between the center two shops. Other interior details have been more difficult to determine. It is known that there were four rooms separated by framed partitions. Beginning at the north end, there was a two-room bakery with one oven; a saddler's, carpentry, and wheelwright shop; and a blacksmith shop. All but the blacksmith shop evidently had wood floors.

During civilian occupation the structure was connected to the new commissary HS-4 by a long metal shed, and the roof was covered in metal. In the 1930s the former bakery was converted to a storage space and the remainder to machine shop and storage. In the 1950s a blacksmith shop was opened in the former blacksmith room for interpretation. In 1979 the National Park Service restored the exterior and interior of the building and furnishings were added.

HS-4, New Commissary Storehouse

This rectangular building is the southernmost of the two structures on the east end of the parade ground. It was constructed during 1867-1868. It measures 84 feet by 31 feet and has walls of coursed rubble stone masonry, gable-roofed at the ends. There was one stone and one brick chimney, one at the north end and another about 20 feet from the south end, as determined from historic photographs. The remainder of the interior was a storeroom without a ceiling. The structure was intended for additional commissary storage. During the 1870s the north end of the building, which had been an office, was converted for use as the post school.

During civilian occupation, in the first two decades of the 20th century, the structure was gutted, provided with a new metal roof, and joined to shops building HS-3 by a long shed. Once a ranch machine shop, during the 1950s the interior was used to house visiting youth groups. A single wooden door with stone stoop was cut into the west elevation at the south end, and men's and women's restrooms were installed. The remainder of the structure was converted to use as the park maintenance shop. The metal roofing was replaced with wood shingles in 1968 following accidental destruction of the roof. Today the north end of the structure has been restored as the post school and the historic storeroom area houses the park curation facilities.

HS-5, Old Commissary Storehouse

This rectangular building is the easternmost of the two structures on the south side of the parade ground. It was constructed in 1866, measures 154 feet by 27 feet and has walls of coursed rubble stone masonry, gable-roofed at the ends. There is a row of rifle ports in the west and south walls. There are two stone chimneys. Interior finish probably included shelving and bins and two or more frame partitions. In the first two decades of the 20th century, civilian owners converted the building to a stable with the windows on the north elevation converted to stall doors. The north wall was connected to the north wall of the quartermaster's storehouse HS-6 with stone masonry and the connecting space roofed with metal roofing on a wood frame, affording a garage open to the south. The roof of the structure was at some time replaced with metal roofing. Stalls were constructed in the interior. The building exterior

has been restored to its historic appearance. The pumproom and tank for the park's water system are in the east end of the structure.

HS-6, Quartermaster's Storehouse

This rectangular building is the westernmost of the two structures on the south side of the parade ground. It was constructed in 1867 and measures 158 feet by 40 feet. There is a row of rifle ports at about the four-foot elevation of the south wall. Inside, a frame partition ran across the structure about 30 feet from the west end, and the intervening space was bisected by another frame partition from that to the west end just north of the door. The northwest room was further subdivided into an office and another room (possibly quarters), while the southwest room was an issuing room with access to the remainder of the structure (the storeroom) through a door in the partition. The north wall was connected to the north wall of old commissary HS-5 with stone masonry and the connecting space roofed with metal roofing on a wood frame, affording a garage open to the south. The interior was altered to provide a barn with stalls and storage facilities, removing part of the evidence of original partitions. In 1913 a loft was added to the building. The building exterior has been restored to its historic appearance. It is now used for storage, interpretation, special events, and display of a Conestoga wagon on loan from Bent's Old Fort.

HS-7, Officers' Quarters

This U-shaped building is the southernmost of the three structures on the west side of the parade ground. It was constructed during 1867-1868 and measures 84 feet by 54 feet overall, with walls of coursed rubble stone masonry. The structure was a duplex, bisected by a continuous 34-foot-long stone partition running east-west at the center. The main portion of each half included four rooms divided by frame partitions, separated in pairs by a central hallway seven feet wide. The outer pair of rooms in each half were two-room apartments for captains. The interior pair of rooms in each half were one-room apartments for lieutenants and each opened onto the hallway. Each hallway ran between a front door and a rear door and each kitchen wing. There were two rooms in each kitchen wing, a servant's room, and a kitchen opening onto the porch. There was a cellar underneath each kitchen wing, accessible by both interior and exterior stairs. In 1869 each cellar was deepened and converted to a kitchen, with the former kitchen converted to a dining area. A porch ran the length of the structure on the front, supported by square wood columns with balustered rails and wooden brackets. There were three brick chimneys on the main structure and one on each kitchen wing. In 1869-1870 one or two four-room frame additions were provided to give each pair of lieutenants a kitchen, dining room, and servant's quarters.

This structure has remained remarkably unaltered over the years and generally preserves its historic features. Used as a residence after the military left, outbuildings were moved, modern utilities installed, and a bathroom added. The building has recently been restored. The concrete platform that replaced the original front porch was removed and a wooden porch reconstructed. Outbuildings (privy, fences, and well) have also been reconstructed.

HS-8, Commanding Officer's Quarters

This L-shaped building is the center of the three structures on the west side of the parade ground. It was built in 1867 and measures 47 feet by 63 feet, and is constructed of finely dressed ashlar stone masonry on the rear (west) side. The north wall was restored in 1972. There are three brick chimneys, one at each end of the main structure, and one at the rear (west) end of the kitchen wing. There is a porch in the middle of the front elevation. The interior of the main portion was divided into four equal rooms separated in pairs by a central hallway running between the front and back doors. The kitchen wing had only one kitchen room with pantry closet. The only second-story room at the fort, a servant's quarters, was immediately above the kitchen.

From the 1880s until the fort's acquisition by the National Park Service the structure was extensively altered but remained a residence. All outbuildings and appurtenances were removed in the early 20th century, although the well and privy liners (stone) remain and are covered. In 1979, foundation and wall repairs were made to the north side and, in 1984, farm period additions on the south and west sides were removed. Other exterior restorations were completed in 1983, 1985, and 1986.

HS-9, Officers' Quarters

This U-shaped building, nearly identical to officer's quarters HS-7, is the northernmost of the three structures on the west side of the parade ground. It was built in 1867-1868; one or two kitchen additions were added in 1869 -1870 (as for officer's quarters HS-7). While its alterations in the 20th century include two bathrooms (one on each kitchen wing porch) as opposed to the single unit added to officer's quarters HS-7, the interior and trim of officer's quarters HS-9 appear to retain a greater proportion of original historic fabric than any other structure in the fort. All original appurtenances and outbuildings were removed in the early 20th century, although the stone well liner remains and is covered. Outbuildings have been reconstructed.

HISTORIC STRUCTURES NO LONGER EXISTING AND OTHER HISTORIC STRUCTURES AND FEATURES

During the military occupation the construction, demolition, or abandonment of a wide variety of structures, including support buildings such as laundress' quarters, outhouses, and corrals took place. Subsurface remnants of these features, as well as remnants from the ranching period, constitute the archeological remains of Fort Larned. Other features removed included the parade ground, gardens, dugouts, dumps, and a drainage system.

The most recognizable of these structures was the blockhouse (HS-10). This was located about 100 feet southeast of the south end of the new commissary (HS-4), towards the curve of the dry oxbow. It was constructed in 1864-1865. Its six walls were of coursed rubble stone masonry with two rows of rifle ports all the way around, one about 3 to 4 feet from the ground and the other about 2 feet from the top of the 12-foot walls. A wood-walled tunnel ran from the interior of the structure 16 feet northwest to a covered well. The structure was whitewashed after 1871. Interior details are unknown, since the structure was demolished before the turn of the century. The structure was originally intended for use as a blockhouse, but the need for

such a defense never arose. During the first few years of its life it was used for storage of supplies. In 1867 it had been converted to a guardhouse, with prisoners housed in the interior.

Archeological investigation in 1974 revealed the existence of the ground plan, the tunnel, and the well, together with some debris. The excavation was backfilled and the site marked on the surface until 1988 when, at the direction of Congress, the blockhouse was reconstructed.

SANTA FE TRAIL RUTS AREA

The 44.44-acre area is located approximately 6 miles southwest of Fort Larned. It preserves the wagon ruts over the Santa Fe Trail. Never plowed, it was kept intact as a small pasture surrounded by croplands by its previous owner until its acquisition by the federal government after the establishment of the national historic site. The gently rolling terrain is broken by the longitudinal depressions of the trail ruts and by the remains of a few buffalo wallows. The vegetative cover is a remnant of original prairie vegetation, altered due to long-term grazing. A raised platform, near the center of the south end, provides an elevated view of the area.

VISITOR USE DATA

VISITOR USE STATISTICS AND ANALYSIS

Fort Larned National Historic Site offers a rare visitor experience centered on the interpretation of the historical resources. The site is open all year for day use and receives visitors throughout the year. The nearest overnight lodging is 6 miles away in Larned, Kansas. Table 2 and figure 1 display the reported visitor use for the period 1980 through 1992.

Methods of Counting

In the early 1980s visits were hand-recorded by rangers, but only those visitors actually entering the visitor center were counted. The levels of visitation recorded were between 20,000 and 25,000. This counting method consistently underestimated the number of visitors because the rangers could not devote full time to the task and not all visitors entered the visitor center. Visitors touring on their own could do so unobserved and therefore were not counted.

Since 1983 vehicle counts have been made in addition to the counts at the visitor center. Two automatic traffic counters were installed. One was laid on the park entrance road to record visitors entering the park to tour the fort. The other was placed on the access road to the picnic/roadside rest area. The picnic area access was uncontrolled and the area was still used as a highway rest stop by the public. The large visitation increase in 1983 is attributed to these changes in the way visitation was counted and reported.

In 1987 the picnic area was remodeled to eliminate the separate access road, and one traffic counter was removed. Visitation counting procedures were thus changed once again. The remaining traffic counter is located to count all vehicles operated by the general public that enter the park. Access is controlled by a gate that is locked when the park is closed, so extraneous vehicle counts have been deleted from the park's reported visitation.

Forecasting future visitation is still difficult due to the lack of reliable past visitation data. Visitation data prior to 1983 is low because not all visitors were counted. Data for 1983 through 1986 is high because the visitors who used only the picnic area (as a roadside rest area) were included with park visitors.

Month by Month Data and Analysis (latest complete year 1992)

By definition, recreation visits are the entries of persons to lands or waters for recreational purposes. Nonrecreational visits include persons going to and from inholdings; commuter and other through traffic; tradespeople with business within the park; any civilian activity related to the pursuit of a gainful occupation (e.g., guides); government personnel (other than National Park Service) with business in the park; citizens using NPS buildings for civic or local government business, or attending public meetings; and research activities independent of NPS interests (e.g., meteorological research). Fort Larned National Historic Site does not report nonrecreational visits since it receives only incidental nonrecreational use due to its controlled access. Much of the picnic area use during the period 1983-1986 could have been attributed to through traffic and thus would have been classified as nonrecreational use.

Figure 1
Fort Larned National Historic Site
Recreation Visits 1980-1992

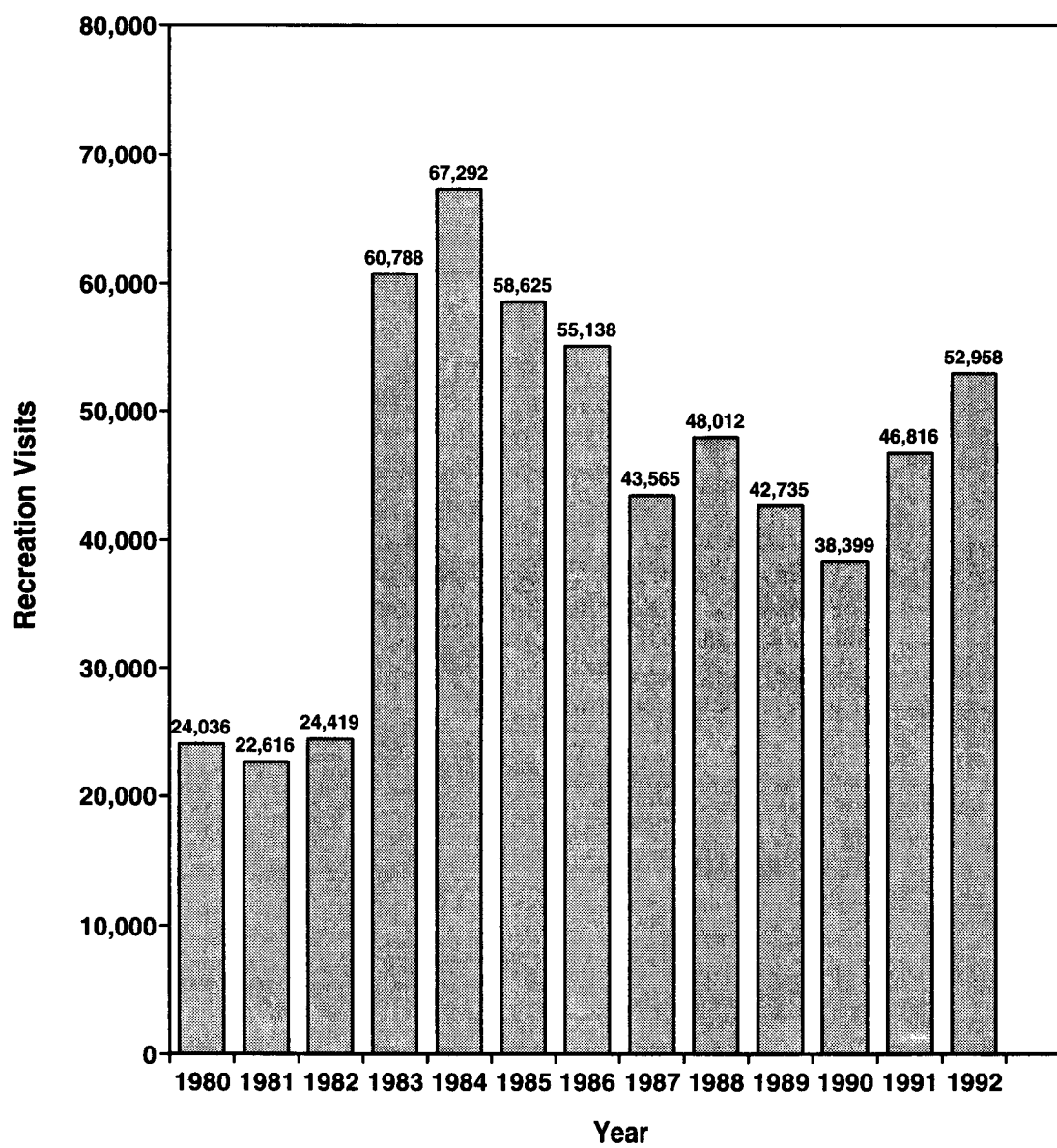


TABLE 2: VISITOR USE 1980-1992

Year	Recreation Visits
1992	52,958
1991	46,816
1990	38,399
1989	42,735
1988	48,012
1987 ¹	43,565
1986	55,138
1985	58,625
1984	67,292
1983 ²	60,788
1982	24,419
1981	22,616
1980	24,036

Source: National Park Service, Washington Office, Socioeconomic Studies Division

1. Picnic area was remodeled and one traffic counter was removed.

2. Counting procedures were changed. Traffic counters were installed to automatically record visitation. Prior to 1983 visitors were counted by hand.

The visitation pattern for Fort Larned National Historic Site follows the typical profile. Visitation begins to increase in the spring, peaks during the summer, declines in the fall, and reaches the lowest level during the winter. The highest number of visits occur during summer when the weather is best for vacationing and children are out of school. During the spring and fall, numerous large school groups visit the park.

Visitation data by month for 1992 are displayed in table 3 and figure 2. Visitation to the park in 1991 was 28.1% above the visitation recorded for the comparable period in 1990. Visitation for 1992 exceeded 52,000 recreation visits for an increase of 13.1%.

TABLE 3: RECREATION VISITS BY MONTH FOR 1992

Month	Recreation Visits
January	1,320
February	1,114
March	2,780
April	3,854
May	7,989
June	7,120
July	9,047
August	7,638
September	4,542
October	3,742
November	1,804
December	2,008
Total	52,958

Source: National Park Service, Washington Office, Socioeconomic Studies Division

Peak Use Analysis

The park staff estimates that peak visitation days are the Fourth of July and other special event days. On these days approximately 500 persons visit the park. Throughout the year the heaviest visitor use occurs on Saturdays and Sundays. On these days the park has about fifty percent more visitors than on any other day of the week. Most visitors live in Kansas (table 4). Foreign visitors made up only 3.3% of the total in 1989.

TABLE 4: ORIGINS OF VISITORS FOR 1991

Origins of Visitors	Percent of Total Visitation
Kansas	52.1%
Adjacent States	12.4%
Rocky Mountains & North Plains	1.4%
Northeast	4.5%
Midwest	11.1%
Southeast	4.3%
Southwest	5.3%
Far West	5.4%
Foreign	3.3%
Total	100.0%

Source: Fort Larned National Historic Site

In 1992 the peak visitation month was July, when visitation averaged over 292 visitors per day. Over the last few years the months of June, July, and August have alternated as the months of highest visitation.

The typical length of stay for visitors at Fort Larned National Historic Site is two hours. The principal visitor activity is touring the historic buildings, either alone or with a guided tour. Visitation far exceeds the norm on the days when special events such as living history displays and military reenactments are held.

PROJECTIONS OF POTENTIAL DEMAND

Projections of future use are based on the visitation data reported for the years 1987 through 1992. High, medium, and low values were calculated for the years 1993 through 1997 (table 5 and figure 2). A process of double exponential smoothing with a weight of 10% provided the best forecasts for visitation. The average forecast error was 4,226. The high and low projections represent the approximate 90% forecast interval. There is a 0.90 probability that the actual values of the forecast variable will fall between the high and low projections. With only five data points, high and low projections could not be calculated for the years 1998 through 2002.

TABLE 5: PROJECTIONS OF POTENTIAL DEMAND

Year	Low Level of Demand	Medium Level of Demand	High Level of Demand
1993	40,340	49,370	58,390
1994	41,360	50,470	59,590
1995	42,230	51,580	60,830
1996	48,480	52,690	56,904
1997	44,460	53,800	63,140
1998	na	54,910	na
1999	na	56,020	na
2000	na	57,130	na
2001	na	58,240	na
2002	na	59,340	na

na = not available, insufficient data to compute

Source: National Park Service, Denver Service Center, Central Team, Branch of Planning

SANTA FE NATIONAL HISTORIC TRAIL

The Santa Fe National Historic Trail was established on May 8, 1987. In May 1990 the comprehensive management and use plan for the trail was approved. Fort Larned National Historic Site is closely related to the Santa Fe Trail and is a logical interpretation point for the central portion. The effect on visitation from the addition of Santa Fe Trail interpretation at this or any other national park area along the trail is uncertain at this time. It is expected that visitation to these sites will increase due to increased promotion, interpretation, and public knowledge of the trail. However, other factors will also affect visitation to these sites. Specific cause and effect relationships regarding visitation cannot be readily determined.

Some trail segments and sites are not federally owned, but have been included as part of the Santa Fe National Historic Trail through the site/segment certification process. The existing Santa Fe Trail Center in Larned, Kansas is one example of such a site. It is certified as an interpretive center and is included as part of the Santa Fe Trail. Visitation at the Santa Fe Trail Center has been in the range of 8,000 to 10,000 visitors per year for the last few years. Visitation data for NPS sites along the Santa Fe Trail prior to its designation as a national historic trail are presented in table 6.

Figure 2
Actual and Projected Visits

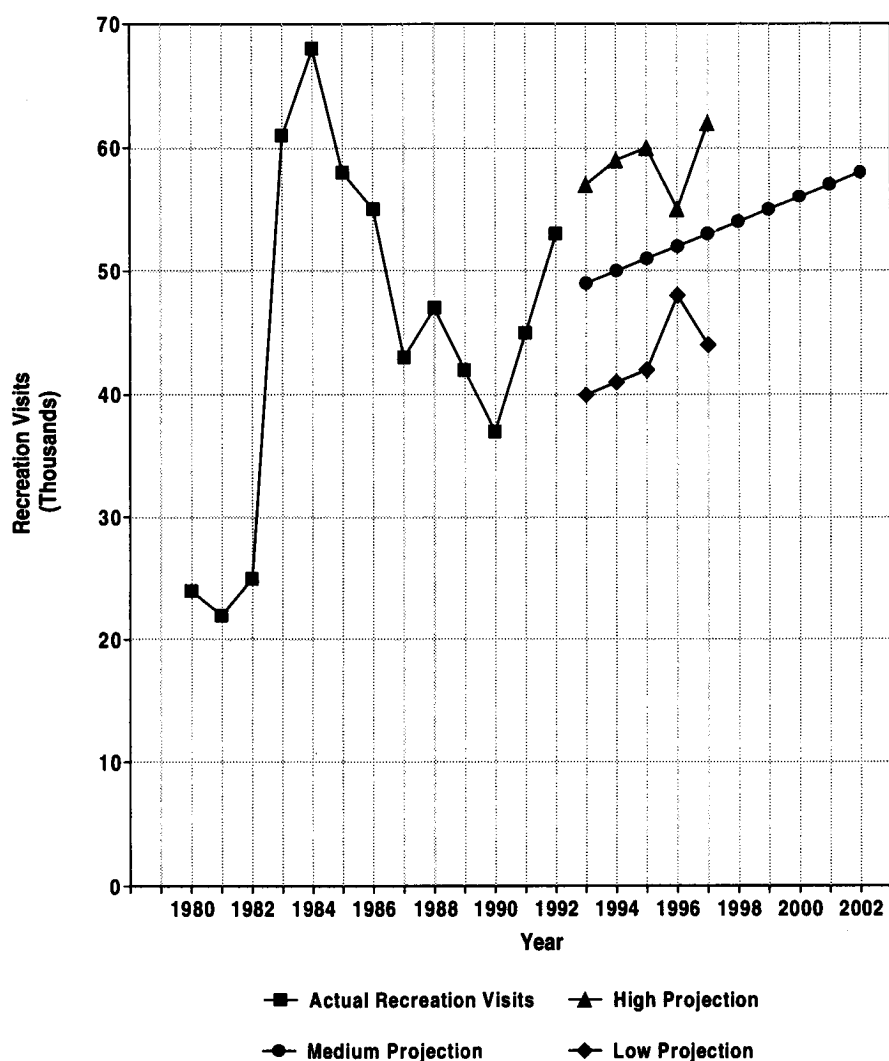


TABLE 6: ANNUAL VISITATION TO NPS AREAS ALONG THE SANTA FE NATIONAL HISTORIC TRAIL

Year	Fort Larned	Bent's Old Fort	Fort Union	Pecos National Historical Park
1990	38,400	43,200	17,000	45,300
1989	42,700	45,500	20,000	44,600
1988	48,000	41,800	18,100	48,600
1987	43,600 ¹	41,200	14,400	45,300
1986	55,100	44,800	13,400	44,800
1985	58,600	42,900	13,400	44,600

Source: National Park Service, Washington Office, Socioeconomic Studies Division

1. Counting procedures were changed.

REGIONAL LAND USE AND REGIONAL VISITOR FACILITIES AND SERVICES

LAND USE

Agricultural lands surround the park. Flood irrigation or dry land farming practices are used on surrounding fields. Center pivot irrigation, if used, would significantly impact the visual experience of visitors. Oil and gas exploration would also impact the viewshed of the park.

Views from the park are not pristine. Roads, power lines, water towers, and agricultural activity are the main visual intrusions seen from the park. Some scenic easements have been acquired and views from the fort's historic core area to the north, east, and west are screened by trees and riparian vegetation growing along the Pawnee River. Because of the relatively flat terrain and low vegetation, the views to the south are interrupted in several places by the types of intrusions previously mentioned. Even so, one can get a feeling for the vast prairie faced by the Indians, soldiers, and settlers in the late 19th century.

Pawnee County has no countywide zoning. Lands adjacent to Fort Larned are privately owned, either by individuals or small corporations, and they are unzoned. There are no known plans for new or accelerated uses of lands adjacent to the park.

VISITOR FACILITIES AND SERVICES

Although it is only a small town, Larned provides all necessary visitor services. There are two hotels and two motels that have a combined total of 103 rooms. A variety of stores and restaurants are located in the downtown area.

The city provides 147 acres of public parkland, including nine tennis courts, seven ball fields, a nine hole golf course, and a swimming pool. The private sector offers a theater, golf course and country club.

Health care facilities are provided by Central Kansas Medical Center, St. Joseph Campus. Located in Larned, it is a 68-bed primary acute care facility.

REGIONAL RECREATIONAL RESOURCES

Santa Fe Trail Center

The Santa Fe Trail Center is located 2 miles west of Larned on Kansas Highway 156. It interprets the history of the Santa Fe Trail from the early Indian inhabitants and Spanish conquistadors through the settlement era up to 1919. It is a nonprofit organization owned and operated by the Fort Larned Historical Society. A professional director/curator manages the facility with a help of staff and volunteers. The center was opened in 1974. The facility houses museum collections, archives and a research library. Several historic or reconstructed buildings including a sod house, a dugout home, a one room schoolhouse, and a railroad depot have been built on or relocated to the museum grounds. The center is certified by the National Park Service as a Santa Fe Trail interpretive center. Certification was received in April 1991. The

center works closely with Fort Larned National Historic Site to promote and interpret the Santa Fe Trail. Visitation in recent years has ranged from 8,000 to 10,000 per year.

The Santa Fe Trail Center and Fort Larned National Historic Site have developed a strong, cooperative relationship. The Santa Fe Trail Center is locally staffed and serves as a museum presenting the history of the region. This story includes the Santa Fe Trail, but the two entities are taking care to overlap their interpretive messages without duplication. The continuation of this relationship will benefit both interpretive entities and the visiting public.

Central States Scout Museum

The Central States Scout Museum is located in Larned, Kansas. This small museum houses collections of Boy and Girl Scout memorabilia. It is open for a couple of hours each evening and by appointment. Visitation is relatively light.

Dodge City, Kansas

Dodge City is about sixty-two miles southwest of Larned. Its tourism industry is based on western history and Hollywood themes.

The Front Street area is a replica of the old wild west, including the Long Branch Saloon made famous in the long running "Gunsmoke" television series. A wild west variety show is staged during the summer season. The Boot Hill Museum with its collection of graves, guns, and western relics is popular. Approximately 100,000 tourists a year visit the Dodge City attractions.

Other

A campground has been considered for the vicinity but, due to the lack of demand, no such business has been developed by either the private or public sector. This demand is likely to remain unchanged in the foreseeable future.

SOCIOECONOMIC ENVIRONMENT

Pawnee County is located in the agricultural heartland of central Kansas. The historic Santa Fe Trail ran through the middle of the county, but the four small communities that developed in the county were located along the railroad that was built in the early 1870s. Interstate 70, which is now the main east-west motor vehicle route through the state, bypassed the town of Larned by about 50 miles. The sparsely settled rural area is economically dependent upon its agricultural land base and the Larned State Hospital.

POPULATION

Nearly two-thirds of the population of Pawnee County lives in the city of Larned (table 7). Three other small towns, Burdett, Garfield, and Rozel, are the only other population centers within the county. Both the town and the county have declined in population since 1960.

TABLE 7: POPULATION OF LARNED AND PAWNEE COUNTY

Year	1990	1980	1970	1960
Larned	4,800	4,811	4,567	5,001
Pawnee County	7,600	8,065	8,484	10,254

Source: Kansas Department of Commerce

ECONOMY

Agriculture is the leading industry in Pawnee County; 86% of the county's 479,360 acres are tillable. Around 70,000 acres are devoted to irrigated crops. Approximately 1,280 farms are located within the county. The chief crops are wheat, grain sorghum, forage sorghum, corn, soybeans, and alfalfa. The county is known for the excellent quality of its alfalfa and ranks in the top three counties in Kansas in alfalfa production.

Health care, including the Larned State Hospital, is the next leading industry in the county. The Larned State Hospital employs 928 people. The new Larned Correctional Mental Health Facility was constructed on the grounds of the Larned State Hospital and opened in January of 1992. It added approximately 250 new jobs to the county's economy. The county has had a relatively low level of unemployment (table 8).

TABLE 8: PAWNEE COUNTY WORK FORCE STATISTICS, MARCH 1990

Category	Number of People or Percent
Civilian Work Force	3,641
Employed	3,537
Unemployed	104
Unemployment Rate	2.9%

Source: Kansas Department of Commerce

TABLE 9: EMPLOYEES IN MAJOR ECONOMIC SECTORS, MARCH 1990

Economic Sector	Number of People
Manufacturing	75
Services	450
Government	1,500
Wholesale/Retail	525
Agriculture	525

Source: Kansas Department of Commerce

Many of the people employed in the county work in service or wholesale/retail sector jobs that are directly linked to the county's agricultural industry. The government sector includes the positions at the Larned State Hospital, and city and county positions.

The 1988 per capita personal income for Pawnee County was \$17,221. The average per capita personal income for the state of Kansas was \$15,740 for the same year.

TRANSPORTATION/ACCESS

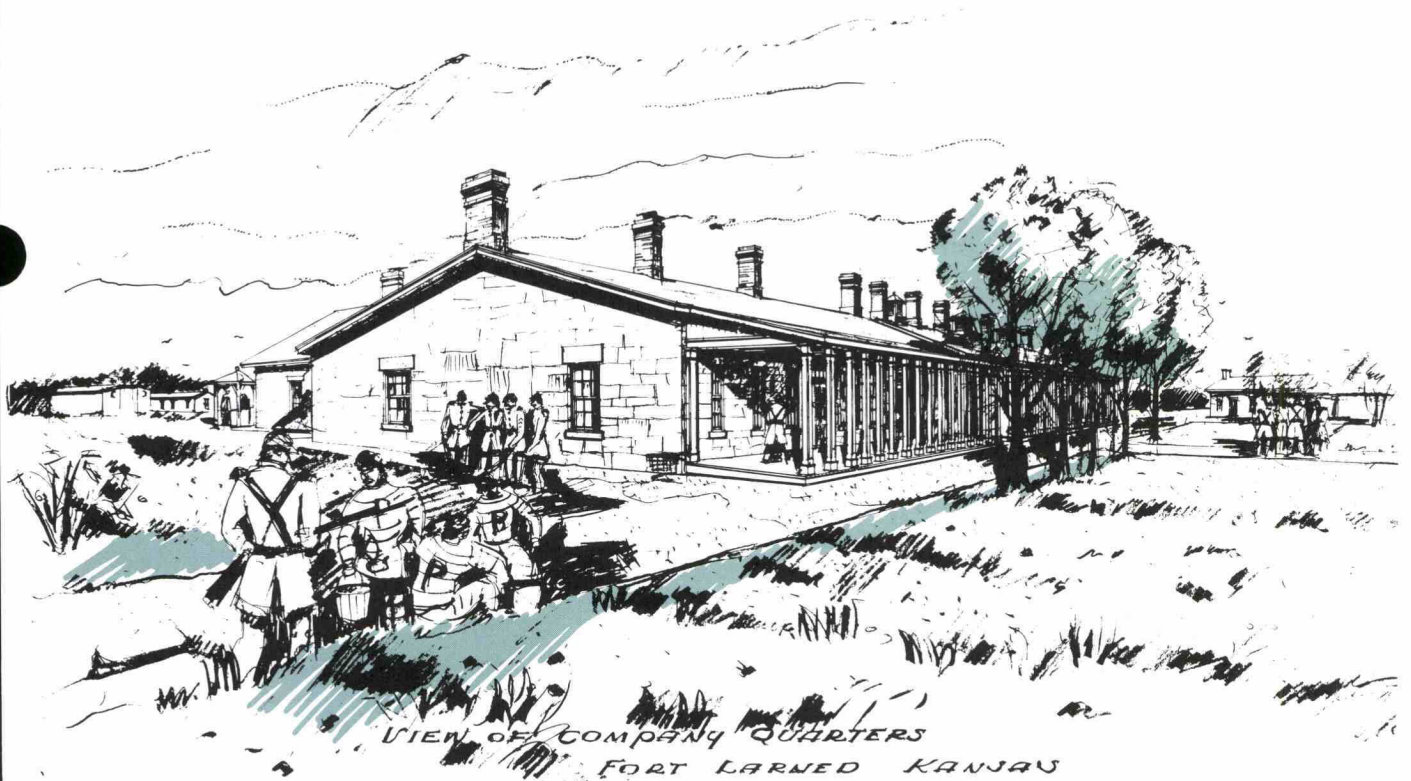
Larned, Kansas is served by U.S. 56 (Santa Fe Trail), and Kansas highways 156 and 19. An extensive system of county roads links all parts of the county with Larned. There is a city and county airport 1 mile north of Larned. It has one 3,550-foot paved and lighted runway with two 3,100-foot-long sod crosswind runways. The city is served by the Santa Fe Railroad, Mistletoe Express, Federal Express, and United Parcel Service. Wichita, Kansas is about 137 miles from Larned. Regularly scheduled commercial airline passenger service is available from Wichita. Table 10 lists the distance between Larned and selected population centers.

TABLE 10: DISTANCE BETWEEN LARNED, KANSAS, AND SELECTED CITIES

City	Distance in Miles
Chicago, Illinois	772
Dallas, Texas	471
Denver, Colorado	402
Kansas City, Missouri	273
Minneapolis, Minnesota	666
St. Louis, Missouri	529

Source: Kansas Department of Commerce

COMPLIANCE / CONSULTATION AND COORDINATION



COMPLIANCE

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (42 USC 4321 et seq.)

The National Environmental Policy Act requires consideration of the environmental effects of proposed federal actions. The prescribed procedures ensure that public officials and members of the general public are able to review environmental information and impacts before decisions are made and before actions are taken on a project. The environmental assessment, which was integrated into the draft document, provided for review and further action under the act.

Following the public review of the *Draft General Management Plan / Development Concept Plan / Environmental Assessment*, the National Park Service will issue either a finding of no significant impact (appendix C) or a notice of intent to prepare an environmental impact statement.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (16 USC 470 et seq.)

The National Park Service is operating under a programmatic agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers that was implemented in August of 1990. That agreement provides for periodic consultation throughout the planning process and allows either entity to participate as a full planning team member if desired. The programmatic agreement also contains a listing of programmatic exclusions, which are actions that, because of the nature of the action and the minor impact on the resources involved, do not require further review and consultation. All other actions discussed in a plan must be further reviewed by those entities stage prior to implementation.

Both the Kansas State Historic Preservation Office and the Advisory Council on Historic Preservation were notified when the planning began for the Fort Larned General Management Plan Amendment, and both were invited to participate. Both offices have reviewed the task directive for this project, which outlined the need for the project and the issues to be addressed. The public review draft, outlining the alternatives developed and the NPS preferred solution, was sent to them for comment during the public review period. Included as part of the GMP public review draft was the environmental assessment, which the advisory council and the state historic preservation office formally reviewed. Their comments regarding the draft are addressed in this final document.

A listing of the actions and whether or not they require further review under the terms of the programmatic agreement is presented in table 11. When actions outlined in the amendment are implemented, those actions described in table 11 as programmatic exclusions will require only a completed XXX (Assessment of Effect on Cultural Resources) form before implementation. Actions not described as programmatic exclusions must undergo further consultation with the state historic preservation office and the advisory council under section 106 of the National Historic Preservation Act and the "Regulations for the Protection of Historic and Cultural Properties" (*Code of Federal Regulations*, title 36, part 800).

THE ARCHITECTURAL BARRIERS ACT OF 1968 AND THE REHABILITATION ACT OF 1973, AMENDED 1978

All proposed facilities and programs will be accessible to special populations.

**TABLE 11: ACTIONS REQUIRING FURTHER SHPO AND/OR ACHP CONSULTATION
UNDER SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT**

Construct new visitor center and administration complex	Requires SHPO and ACHP Review
Provide accessibility to historic structures	Requires SHPO and ACHP Review
Add wooden lean-to to old commissary HS-5	Requires SHPO and ACHP Review
Restore the interiors of barracks HS-1, new commissary HS-4, old commissary HS-5, quartermaster's storehouse HS-6, commanding officer's quarters HS-8, and officer's quarters HS-9 to the historic period	Requires SHPO and ACHP Review
Expand maintenance facility	Requires SHPO and ACHP Review
Construct pedestrian bridge	Requires SHPO and ACHP Review
Bury utility lines	Requires SHPO and ACHP Review
Obliterate irrigation ditches	Requires SHPO and ACHP Review
Construct interpretive trails	Requires SHPO and ACHP Review
Remove roads, parking lot, and highway bridge	Requires SHPO and ACHP Review
Revegetation	Requires SHPO and ACHP Review
Reconstruct sutler's complex	Requires SHPO and ACHP Review
Reconstruct adjutant's office	Requires SHPO and ACHP Review
Reconstruct cavalry stable	Requires SHPO and ACHP Review
Refurnish sutler's complex	Requires SHPO and ACHP Review
Refurnish adjutant's office	Requires SHPO and ACHP Review
Water filtration and distribution improvements	Requires SHPO and ACHP Review

CONSULTATION AND COORDINATION

In August 1993 the *Draft General Management Plan / Development Concept Plan / Environmental Assessment* was reviewed by the Midwest Regional Office (MWRO) of the National Park Service, the State Historic Preservation Officer for Kansas (SHPO), and the Advisory Council on Historic Preservation (ACHP). Changes to address the comments from these reviews were incorporated into the document, and it was circulated to the NPS Washington Office for policy review. Comments from the policy review were addressed in April 1994, and the document was prepared for public review and comment in June 1994.

Public involvement activity began informally in April 1991 with newspaper interviews about the planning process for the park's general management plan. Media interaction continued throughout the preparation of the draft document with a variety of local and regional newspapers. The park also communicated with local and regional tourist attractions during this period to keep them apprised of the park's plans. On April 30, 1994, the Denver Service Center of the National Park Service displayed the document and its alternatives at the annual meeting of the Fort Larned Old Guard, a local support group. The document was placed on formal public review in June 1994, and a public meeting and open house was held in July 1994 to hear the comments of the public.

The agencies listed below have provided assistance and information in the preparation of this document.

Staff, Kansas Department of Wildlife and Parks, Natural Heritage Program

Staff, Fort Larned National Historic Site

Staff, USDA Soil Conservation Service

Staff, National Park Service Midwest Regional Office

Ruth Olson, Santa Fe Trail Center

Cindy Wallace, Larned Area Chamber of Commerce and Pawnee County Economic Development Commission

Vern Steffen, Larned County Commissioner

Ron Arnold, Larned City Manager

INTERPRETIVE PROSPECTUS



OVERVIEW

INTRODUCTION

Fort Larned offers park visitors a special opportunity to experience a particular period of American history. The unusually high percentage of Fort Larned's original historic fabric and with the historic integrity and completeness of the restored historic quadrangle offer meaningful interpretive experiences. The primary interpretive themes for Fort Larned National Historic Site, developed during the general management planning process, are based on the park's enabling legislation and on its purpose and significance statements.

The visitor experience will be focused on Fort Larned National Historic Site's four primary interpretive themes:

The road to Santa Fe, or the Santa Fe Trail, increased trade, travel, and commerce.

Through the establishment of Fort Larned and other associated military posts, the U.S. Government established its authority and control, and extended its influence along the Santa Fe Trail corridor.

The culture and the lifestyle of the Plains Indians were irreversibly altered by encroaching nonnative cultures.

People from a variety of cultures interacted at Fort Larned, including Anglo-Americans, African-Americans, Mexican-Americans, American Indians, and recent European immigrants (both soldiers and civilians).

The visitor will gain a better perspective of the historic significance of Fort Larned and the visitor experience will be enhanced and reinforced by:

the exclusion of modern vehicles and other modern intrusions from the historic core

the integrity of existing cultural resources

the park's strong living history/costumed interpretation program made possible by a substantial, dedicated group of volunteers

All facets of Fort Larned's role as a principal guardian of the Santa Fe Trail commerce and travel must be interpreted and supported by adequate and appropriate public and operational facilities.

SUMMARY OF VISITOR EXPERIENCE/MEDIA PROBLEMS AND NEEDS

Fort Larned's 1979 interpretive prospectus, which is based on the park's 1978 master plan, is outdated. The important deficiency is the failure to adequately balance the importance of three of the park's four primary interpretive themes with the fourth theme. Most of the interpretive media and personal services are currently devoted to the frontier U.S. Army and

INTERPRETIVE PROSPECTUS

military post. Interpretation of the commerce and travel along the Santa Fe Trail corridor, the irreversible alteration of the Plains Indians' culture, and the interactions of a variety of cultures at the post are inadequately addressed.

A quality visitor experience at Fort Larned is further compromised by:

- the intrusion of vehicles in the historic core

- the lack of an adequate, updated, site-specific Fort Larned publication

- the incomplete refurbishing of original structures

- the inaccessibility of the refurbished historic structures and visitor facilities to visitors with mobility impairments

- the inadequate interpretation of building sites and other features away from the fort's historic quadrangle area

- the inadequate interpretation of the Santa Fe Trail ruts and the native grasslands located in the detached southern unit

- the inadequate interpretation of the four historic horse-drawn, wheeled vehicles and unacceptable exposure of three of them to the elements on the fort grounds

- the inconsistent fee collection control due to the open visitor flow pattern that allows visitors to visit other historic buildings before entering the visitor center or to avoid the visitor center completely

- the inadequate interpretive support facilities, especially those supporting the living history/costumed interpretation

INTERPRETATION/VISITOR USE OBJECTIVES

The overriding objective of this combined general management plan amendment and interpretive prospectus is to enhance the quality of the visitor experience by interpreting the importance of Fort Larned and to provide adequate interpretive and support facilities.

A majority of Fort Larned's management objectives relate directly to the visitor experience. Fort Larned's statement for management contains the following management objectives:

- to re-create, to the extent possible consistent with management policies and historical documentation, an atmosphere of 1860s-1870s Fort Larned, an isolated military post along the Santa Fe Trail, thereby providing the visitor with the opportunity to learn about and understand its role in the opening of the West

- to eliminate or minimize within the historic zone and its viewshed the intrusion of 20th century man and his contrivances from the 19th century atmosphere of a frontier military fort

- to provide visitors with a varied, comprehensive, and effective interpretive program with the highest possible standards of presentation and historical accuracy, focusing on the interactions among the frontier army, travelers on the Santa Fe Trail, and the Plains Indians

- to make interpretive programs and areas meaningful and accessible to special populations, including physically and mentally challenged, and non-English speaking visitors

- to establish and implement a comprehensive education program in support of the "Parks as Classrooms" initiative that will feature a variety of curriculum-based education programs designed at individual grade levels

- to maximize interpretive opportunities available to the public through the use of a highly trained and motivated group of employees and volunteers

- to provide park visitors and employees with a safe park environment free of unnecessary risk of injury or loss, balanced with the consideration for maintaining the historic integrity of park resources

On completion of a visit to Fort Larned National Historic Site, visitors should understand the important interrelationships of Fort Larned with the Santa Fe Trail corridor and its environs during the last half of the 19th century and have a clear concept of the high degree of historic integrity of the park's surviving historic resources as a setting within which the all major parts of the fort's story are presented.

VISITOR CENTER/PARK HEADQUARTERS FACILITY

A new park visitor center will be built outside the historic core of Fort Larned, probably on the slight bench due west of the historic quadrangle across the Pawnee Fork. It will serve as an interpretive gateway to the park's prime historic resource — the quadrangle of nine stone

buildings with a high percentage of original historic fabric. Therefore, all interpretive and informational media in and around the new visitor center will be designed to entice visitors to cross the Pawnee Fork and experience the park's rich historic resources. Additionally, the interpretive media will relate all aspects of the park story within its larger context of western United States history.

The visitor center and its surrounding area will contain all of the park's interpretive media except the actual historic furnishings in the historic buildings, wayside exhibits, ambient audio tapes in some historic buildings, and some self-guiding publications.

Federal laws mandate that all parts of the building, including all interpretive media, will be accessible and architecturally barrier-free.

Deck (or Overlook) Waysides

An exterior interpretive deck/view area/overlook should be designed as an integral part of the visitor center and its site development. Functionally, it will provide visitors with a directed view of the restored native grasslands surrounding the fort and the general route of the adjacent Santa Fe Trail.

Two low-profile easel wayside exhibits installed on the deck/overlook will provide the interpretation for this viewshed. They will interpret the restored native grassland surrounding the fort and the present and historic prairie ecology. The route of the Santa Fe Trail near Fort Larned will also be interpreted and could include comparisons of the travel time for historic freight caravans and travelers compared with modern travel times for identical distances.

Lobby/Sales Facility

The lobby's information/orientation desk should be designed for all traditional front desk functions and should also accommodate a remote start for the slide/sound audiovisual program, the park's fee collection operation, and the sales counter for the Fort Larned's office of Southwest Parks and Monuments Association (SPMA).

As a tool for the information desk staff, a large oblique view exhibit panel showing the Fort Larned historic area should be designed and installed at or adjacent to the desk. A large art graphic, including easily recognizable distinctions between surviving structures and missing structures, is recommended.

The SPMA sales publications display facility should be located in the lobby within full view of the information desk and be designed compatibly with the remainder of the lobby and visitor center furnishings and exhibits.

A dedicated space with seating for 8 to 10 persons will be provided within or just off the lobby to give programmatic access to the historic fort buildings for those who either cannot or choose not to visit them. A 15-18 minute video program, with minimal narration, will provide this experience.

The theater, public restrooms, and each of the three museum exhibit galleries should open immediately off the lobby. Each of the three exhibit galleries — the Plains Indians, the Santa Fe Trail travelers and traders, and the U.S. Army and the military post — will have a life-size focal point exhibit at the lobby entrance. It is possible that each of the three exhibits could appear to be part of the lobby. They should be interrelated by use of an interpretive message regarding interaction among many cultural groups.

Museum Exhibits

The exhibit space will be divided into three separate galleries. The focal point of each gallery entrance will be a life-size exhibit, prominently visible from the lobby information/orientation desk. Suggested subjects for the focus exhibits are:

the frontier army/military post — the existing Buffalo Soldier with his horse

the Plains Indian--a mounted Kiowa or Cheyenne Indian

the Santa Fe Trail commerce/travel — a bullwacker/trader with a loaded conestoga wagon drawn by oxen (at least one pair, preferably three pair).

The interpretive message thematically tying these three dramatic exhibits together might well be provided through an interpretive panel. It should concentrate on, but not be limited to, the significant amount of interaction among Anglo-Americans, African-Americans, Mexican-Americans, and American Indians.

The three museum exhibit galleries will occupy a combined total of approximately 2,800 square feet. The three galleries will not necessarily be equal in size. The actual allocation of space will be left to the exhibit planners and designers. Because of the larger quantity of artifacts related to the army and the fort, that gallery will probably be the largest.

Each of the three galleries should be acoustically separate, making it possible for sound tracks of music and appropriate ambient sounds to be heard.

A permanent exhibit featuring 77 original newspaper clippings from Indian Wars-era publications will be developed in the visitor center.

Frontier Army/Military Post Exhibit Gallery — Subtopics to be interpreted in this gallery include:

the development and physical changes of Fort Larned from 1859 to the present

the nature and identity of the officers and enlisted men garrisoning the post

numerous aspects of garrison life and activity at Fort Larned specifically interpreted through the use of original artifacts

military escort service for commercial traders and other travelers along the Santa Fe Trail corridor

battles and conflicts engaged in by Fort Larned troops

The physical development and changes of Fort Larned should be interpreted through the use of sequential graphics, perhaps through a short audiovisual (or silent video) loop (two to four minutes long) for stand-up viewing. The story of the physical development and change of Fort Larned should span its entire history from its establishment on the Pawnee Fork in 1859 to its present restored condition as a national historic site and should include:

the original adobe structures

the replacement of rapidly deteriorating adobe buildings with more durable sandstone structures

the abandonment of the military post

the adaptation of the core structures to civilian farm and ranch use

the establishment of the national historic site, with restoration of surviving original structures and reconstructions

Exhibits interpreting the nature and identity of the officers and enlisted men who garrisoned Fort Larned over the two decades of its military existence ("just who were these soldiers?") should draw on specific personal documents and anecdotal sources. Wherever possible, the personalities should be directly related to surviving structures of the fort with the purpose of enticing visitors to continue on across the Pawnee Fork to really experience the fort.

One of the key exhibits should interpret the importance of the sutler's store in the life of the entire extended garrison; it, too, should be developed with the purpose of enticing visitors to cross the Pawnee and experience the real resource. The sutler's store was the focal point for the fort's commerce and social intercourse and the only location where all the various inhabitants of the post — permanent, temporary and itinerant — interacted under normal circumstances, including U.S. Army officers and enlisted men, military dependents, civilian employees of the army, Native Americans, Indian agents and their employees, and Santa Fe Trail traders and travelers. This is the one place where all of the park's primary interpretive themes interface, offering an opportunity to place all in proper context. Park collections contain enough artifacts from the store to interpret this key facet of Fort Larned.

The following aspects of specific garrison life and activity over Fort Larned's two decade span of existence (1859-1878) should be interpreted through the use of original artifacts:

the life of army officers, both single and married, on the frontier (including lives and activities of dependents)

the common soldier, both noncommissioned officers and the rank-and-file, both infantry and cavalry

the story of the black soldiers, commonly called Buffalo Soldiers, on the frontier (Company A, 10th Cavalry was stationed at Fort Larned from April 1867 to January 1869)

the life and role of women at the post, specifically including the laundresses as well as officers' wives and families

the numerous other civilians at a military post, including the sutler (or post trader) and his employees, servants, cooks, and civilian employees

the medical department, including post surgeons, hospital stewards, and orderlies

the support services of the Army — the commissary and subsistence department with its commissary and bakery, and the quartermaster department with its storehouse and shops (blacksmith, wheelwright, saddler, and paint)

the ordnance department and its arsenal/magazine

education and spiritual guidance on a post, including the post school and civilian Army chaplains

military defenses on the frontier

military discipline and military justice on the frontier

Wherever possible, the original artifacts and the supporting graphics used to interpret them should be related directly to the fort's refurnished structures (largely furnished with replicas and period pieces). The intent of the exhibits is to draw visitors into the historic core of fort buildings.

Plains Indian Exhibit Gallery — It is important for this gallery to set the scene by introducing all of the different Native American tribes who inhabited this section of southern plains before the Santa Fe Trail began to be used in 1822. Such an exhibit should flow into exhibits interpreting an overview of the nature and lifestyles of the Plains Indian cultures during the Santa Fe Trail use years. These exhibits should make liberal use of artifacts, many of which may have to be acquired. It is most important that the focus of the exhibits remain on Plains Indian lifestyles and culture and not become a gallery of Plains Indian arts and crafts.

Other exhibits in this gallery should interpret the why, when, and how of the demise of the Plains Indian culture, including how economic development and settlement patterns affected the Native Americans. The various aspects of Fort Larned's direct relationship with the Plains Indians should be explored, including the fort's role in military operations and its function as a site for the Indian agency headquarters and annuities distribution point.

The exhibits could be designed as one of the key links between this gallery and the military story exhibit gallery.

Santa Fe Trail Exhibit Gallery — since four separate units of the national park system (Pecos National Historical Park, Fort Union National Monument, Bent's Old Fort National Historic Site, and Fort Larned National Historic Site) are represented along the Santa Fe National Historic Trail, this gallery should not interpret the entire Santa Fe Trail. Instead, these exhibits should interpret Fort Larned in its historical context with the trail. As stated in the *Santa Fe National Historic Trail Interpretive Prospectus* (September 1991), "Care must be taken to blend overall

Trail interpretation into a complementary whole to serve the needs of the diverse visiting public and to capitalize on the special resources of each of the individual sites. Each site should make its own unique contribution to the overall story to be told. Visitors should come away having a sense of the significance of the Santa Fe Trail as an entity as well as the significance of specific sites along the route."

Since Fort Larned supported the central portion of the trail, this gallery will be an appropriate location to introduce the variety of trail landscapes and ecosystems as a way of understanding the factors affecting travel, such as topography, water levels, the availability of grass, and weather conditions. These exhibits should particularly interpret the terrain of the central section of the trail. It should focus on the what and the why of the divided routes of this section — the wet/dry routes and the Mountain/Cimarron routes. A map and graphics, perhaps even a video disc program with aerial photography/videography, could compare and contrast the terrain along the northern mountain branch route with that of the southern Cimarron Cutoff.

Another exhibit will interpret the varied uses and users of the Santa Fe Trail, including:

- the freighters and traders using the trail as an avenue of commerce
- the stagecoach and mail routes
- the 1859 Colorado gold rush emigrants

Some portion of this exhibit should be devoted the role that Fort Larned, its military detachments, and its sutler's store played in protecting, escorting and serving Santa Fe Trail commerce and travel. Since three-dimensional artifacts related to this aspect of the history of the fort and trail may be quite limited, planners and designers will probably have to rely on copies of documents and graphics — either copies of historic illustrations or commissioned art.

Finally, this exhibit should interpret the railroads as the successors of the Santa Fe Trail and the ultimate reason for Fort Larned's abandonment in 1878.

Audiovisual Program and Theater

The major audiovisual program for this visitor center will be an expansion of the existing ten-minute slide/sound program. However, the new theater in which it will be shown should be equipped with a multiple speaker sound system, as well as with equipment for a variety of audiovisual programs. The theater should have seating for 75 to 100 persons, with specific space provisions for visitors in wheelchairs.

The theater's projection booth should be equipped for 16 mm movie and video projection as well as slide/sound projection. The primary audiovisual program should be designed for remote start from the information desk and the front of the auditorium as well as from the booth.

The audiovisual program should build on the subject/content of the existing slide/sound program — the context and importance of Fort Larned as a "Guardian of the Santa Fe Trail" and the changes affected by the U.S. Army at Fort Larned. However, it needs to be lengthened to about 14 minutes to include some major additions and revisions. It should be produced originally in slide/sound format, with consideration to be given to presentation by projection video.

The audiovisual expansion should include:

more illustrations of the Plains Indians, the freighter/traders along the trail, and the soldiers in the context of the important historic events

the concept that the Plains Indian culture ended here and why

a greater use of appropriate sound effects

Because of the scarcity of original graphics, this program should continue with the present art format. To maintain continuity, all graphics should be prepared in the same illustration style, preferably by the same artist. More frequent use of "zoom-in/zoom-out" and "panning" techniques will provide greater variety and will help convey more of a sense of motion to the program, which will be supportive of the theme of travel along the Santa Fe Trail.

In addition to the expanded audiovisual program, tapes of Indian War/Civil War era martial band music played on authentic period band instruments should be presented in the theater between program showings (approximately 8 to 10 minutes). Planning and system design should determine whether a separate sound system will be needed, or whether just one track of a larger system for the theater could be used. If possible, cassette tape copies of this period military band music recordings of these musical selections should be produced for sale in the SPMA sales outlet.

INTERPRETATION/VISITOR SERVICES SUPPORT FACILITIES

The new visitor center/park headquarters building should include a number of other services and facilities to properly accommodate and support miscellaneous operational needs for both the public and the interpretive staff. The design of the visitor center/headquarters building must provide for:

visitor restrooms

public telephones

life-safety facilities and services (including first aid services)

underground tornado shelter space for staff and visitors (perhaps located in or adjacent to a waterproofed basement)

staff restrooms

staff break/lunch room

staff conference room

offices for the chief of interpretation and the park historian (with two safes, one for the fee collection money and the other for SPMA funds)

park library/archival/photograph/slide file space

INTERPRETIVE PROSPECTUS

storage space for the park folder reserve stock and general interpretive supplies and equipment

SPMA sales storage space

museum collections storage and collections cataloging/curatorial care workspace

Other space for the headquarters operational functions (such as offices, workspace, supply and maintenance storage, and mechanical space) have been specified elsewhere.

The completion of the new visitor center/park headquarters building will allow the relocation of most of the current uses of the two-company barracks to the new building, leaving it available for uses compatible with the historic core. The east half of this barracks will be refurnished as an infantry barracks, while the west half will be adaptively used as an interpretation/visitor services support facility.

The interpretation support facility in the building's west end should include:

a gathering/staging area and educational room for organized groups, particularly for school groups (consideration could be given to housing this function in a restoration of the mess room in the west side of the barracks; the ambiance will enrich educational experiences

fully accessible public restrooms (the existing public restrooms will be refitted)

life safety facilities and services, including first aid assistance and the existing public tornado shelter

interpretive workspace for some permanent staff and all seasonal and volunteer staff

a living history support complex, including storage for costumes, uniforms, and equipment, changing rooms and lockers for living history/costumed interpretation personnel, and shower facilities

This building requires a retrofit or modification of its heating, ventilating and air conditioning system to reduce the pronounced, intrusive noise level of the existing system.

HISTORIC FURNISHINGS

All refurnishings will be accomplished within the constraints of NPS *Management Policies*.

Five of the nine original stone structures bordering the fort's historic parade ground have been partially or completely refurnished to the period circa 1868. The post hospital in the east half of the barracks (HS-2) is refurnished to the 1871-74 period and the post school room in the north end of the new commissary (HS-4) is refurnished to the year 1871.

The 1868-1878 period was selected for the refurnishings because these buildings were completed by 1868, and it was the end of the peak years of occupancy and activity. The fort's troop strength and activity declined steadily after Custer's victory at the Battle of the Washita

in November 1868, because that battle marked the end of organized Indian threats in the area surrounding Fort Larned.

The visitor experience in the historic core will be enhanced by the refurnishing of all nine historic structures. Each of the projects will be refurnished to the 1868-1878 period. The proposed historic furnishings project for each historic structure will be described separately. Current historic furnishings reports and plans exist for all surviving structures except the commanding officer's quarters.

Historic furnishings reports and plans will be needed for the five reconstructed structures — specifically the post adjutant's offices, the three buildings of the sutler's complex, and the cavalry stable building. All refurnishing will be accomplished within the constraints of *NPS Management Policies* (1988).

Each of the nine historic structures must be reexamined for barriers such as porches with steps or prominent doorway thresholds restricting access. New design solutions will be needed to overcome those barriers with minimal negative impact of the historic scene and the historic fabric of the structures. Full accessibility, within acceptable historical authenticity limits, must be considered for all five reconstructed structures.

ENLISTED MENS' BARRACKS (HS-1)

Only the east half of this barracks will be refurnished. The other half will be adaptively reused as an interpretive support facility. This barracks should be furnished with museum quality items and should have barriers at doorways, rather than the living history refurnishings as in the west half of the other enlisted mens' barracks (HS-2). It will probably be refurnished as quarters for Company C, 3rd Infantry because good documentation exists for that company's occupancy. Museum quality refurnishing will allow a more detailed, complete exhibit with inclusion of small items that can remain in place, out of the reach of visitors. Some consideration might be given to the possible complete refurnishing of barracks space for four soldiers with original artifacts, while refurnishing the remainder of these company quarters with replicas. The exhibit will use the bunk now on display in the current museum (four soldiers slept in each double bunk — two in the upper and two in the lower) and acquire the remaining original artifacts as they became available. Acquisition cost for these original artifacts may be significantly more than for reproductions.

ENLISTED MENS' BARRACKS/POST HOSPITAL (HS-2)

The refurnishing of the living history infantry barracks is essentially complete, and the refurnishing of the 1871-74 post hospital is nearly complete. A number of small items will be added to complete the detailed exhibit scene. Items to be added include weapons, uniforms, additional stoves, mosquito netting above the beds, hospital dressing gowns laid on beds, a three-panel portable screen (used to screen off surgery operations), a surgeon's medical kit, and other small surgical instruments.

SHOPS BUILDING (HS-3)

The refurnishing of the shops building is also essentially complete; no refurnishing will be proposed for this building. However, serious consideration should be given to the reconstruction of two major interior features.

The bake oven in the bakery should be reconstructed as a working oven.

An original forge is used in the blacksmith shop for interpretive/living history demonstrations, which is an unacceptable consumptive use of an original artifact. The second forge should be reconstructed in the blacksmith shop to retire the original forge from active use. It will, however, remain in place as an important part of the blacksmith shop's historic refurnishings.

NEW COMMISSARY BUILDING (HS-4)

The north end of the building will retain the refurnished 1871 post school room.

The relocation of the museum collections storage and collections and curatorial management workspace functions in the new visitor center/headquarters building will allow the south portion of the structure to be refurnished as the post's main commissary storage. The building within a building, required for climate control for the museum collections, will be removed to regain the original interior appearance. Boxes, crates, and barrels bearing military stenciling will be stacked on wooden racks and will be the dominant furnishings of the commissary space.

OLD COMMISSARY BUILDING (HS-5)

With the relocation of the maintenance storage function to newly constructed storage space in the park's maintenance yard, all of the old commissary building will be refurnished except the space occupied by the modern water system machinery and storage tanks which, for pragmatic reasons, must remain.

The vacated space will be refurnished as it was in about 1868, when it housed three specific functions — the office of the post's commissary of subsistence, the storage/issue room for the officers' stores, and the powder magazine.

The commissary and subsistence office will be refurnished as a typical military office on the frontier. The magazine, like the commissary storeroom in HS-4, will be predominantly refurnished with stenciled crates and barrels stacked on wooden racks. The officers' stores distinctly varied from the commissary storeroom. The shelves of the officers' stores will be filled with stocks of the fancier individual items such as canned goods, candles, bottled goods, individually packaged staple goods, and similar products.

QUARTERMASTER'S STOREHOUSE (HS-6)

The largest room, which served as the quartermaster's storeroom, will remain open to allow it to be used for meetings, special events, special activities, and other large group functions.

The remaining space in the far west end of the building, which was divided into the three separate rooms of the post quartermaster's management complex (the quartermaster's office, the issuing room/waiting room, and the quartermaster's clerk's sleeping room) will be refurnished. The reconstruction of interior walls will be necessary to permit this restoration.

The post quartermaster was usually a lesser ranking company officer with special duty assignment, but in 1868 Fort Larned's quartermaster was an ambitious officer of the regular quartermaster department. The quartermaster's office needs to reflect the desks, furnishings, and working space for this quartermaster and his three clerks (more clerks than regulations allowed). The shelves in the issuing room will contain a representative sampling of all of the stock items available for issuance from the large storeroom.

COMMANDING OFFICER'S QUARTERS (HS-8)

This set of quarters, which has been converted for use as the park superintendent's residence, should be restored to the configuration and appearance of its interior in 1868. These quarters should be refurnished to interpret the lifestyle of Fort Larned's commanding officers during the approximate period of 1868-1878. During that period, Fort Larned had at least five commanding officers: Major Meredith Kidd and Major John Yard of the Tenth Cavalry, and Captain Henry Asbury, Captain Daingerfield Parker and Captain Verling Hart of the Third Infantry. The historic furnishings study for the building will be revised and a new historic furnishings plan will be prepared.

Because the parlor was used by the post's succession of commanding officers to entertain so many important military personnel during Fort Larned's final decade, the refurnishing of the parlor should allow visitors to enter the room for a more personal interpretive experience. All other rooms in the building should be fitted with permanent doorway barriers.

DUPLEX OFFICERS' QUARTERS, NORTH SET (HS-9)

This duplex set of quarters for company grade and junior offices has more original interior fabric than the south set of duplex quarters (HS-7). Some rooms along each hallway should be furnished with original period furnishings with fitted permanent doorway barriers. The remainder of the rooms will be furnished with replica furnishings to allow living history interpretation. Visitors will be allowed to enter these rooms when living history personnel are present, to allow a more personal interpretive experience. These quarters will be refurnished following suggested configurations of officers' quarters:

- a line captain's quarters, with the kitchen in the cellar leaving space for a dining room

- the two-room quarters of line captain or lieutenant of cavalry

- the three-room quarters of the post chaplain, perhaps to the occupancy of post chaplain David White, with his wife and two daughters, who held the rank and prestige of a captain

- two one-room quarters for junior officers, one of which might depict an officer in transit

OTHER HISTORIC STONE STRUCTURES

The refurnishing of the south set of duplex officers' quarters (HS-7) has been completed. One side is furnished with replica furnishings, allowing visitors access to the rooms to experience living history interpretation. The refurnished rooms on the other side are sealed with permanent room barriers. The living history side contains married captain's quarters and a single lieutenant's with two rooms. The other side contains post surgeon's quarters, married lieutenant's quarters, and single lieutenant's quarters.

The reconstructed blockhouse (HS-10) will need no refurnishing, because historically it was a very bare utilitarian space.

The reconstruction of five missing buildings — the adjutant's office, the three-building post sutler's complex, and the cavalry stable — will restore some critical elements and fill the gaps in the park's interpretive story. If these buildings are reconstructed, they will be refurnished completely or in part, and all will be included in the self-guiding publication for the historic core of the post. The use of wayside exhibits to interpret these structures should be avoided, because they will intrude on the historic cultural landscape.

POST ADJUTANT'S OFFICE

This little building, located just north of the north duplex officers' quarters and known at the post headquarters building, may be reconstructed to interpret the "nerve center" of the entire military community. If it is reconstructed, both offices of this structure would be refurnished. The outer room would be the post adjutant's office, and the inner room would be the commanding officer's office.

POST SUTLER'S COMPLEX

This three-building complex, perhaps more than any other missing structure, would fill in the gaps in the interpretive mission. The complex, consisting of the sutler's store, a mess room, and the sutler's residence, was located southwest of officer's row near a bend of the Pawnee Fork.

All aspects of life at the post came together and interrelated within this complex, making it the community center of the post. If the three buildings are reconstructed and refurnished, they will provide an important interpretive experience for park visitors.

Refurnishing both the store and the billiard room would interpret the most influential economic presence at the post as well its social center. Here travelers and traders on the Santa Fe Trail mingled with the officers, soldiers, civilians, and dependents of the Fort Larned garrison as well as the American Indians of the southern plains.

Many of the junior officers took their meals at the sutler's mess room; if refurnished, this structure will round out the interpretation of officers' life at Fort Larned.

During the peak years of the fort, the federal government's Indian agent lived in the sutler's residence. If refurnished, this dwelling, along with the refurnished sutler's store, will provide the most effective setting for interpreting the relationships of American Indians with the military and civilian personnel of the fort and the travelers and traders using the Santa Fe Trail.

CAVALRY STABLE BUILDING

If reconstructed and partially refurnished, the stables for the Buffalo Soldiers of Company A, 10th U.S. Cavalry will provide the focal point for the interpretation an ugly and unfortunate but important aspect of military life at the fort — the racial discrimination existing in the U.S. Army at that time. The reconstruction of this cavalry stable would include the interior storage rooms and all the stable stalls. The storage rooms, which contained all equipment, weapons, accoutrements, ordnance, and supplies of the African-American cavalrymen of the 10th Cavalry, would be refurnished to a period just before the 1869 burning of the stables. The interior space in the middle, between the stalls, would also serve as protected exhibit space for the fort's collection of historic vehicles, especially military freight wagons and the Rucker army ambulance. The stable stalls would also be functional to stable horses used by living history cavalry units as well as future park staff interpretive use.

AMBIENT AUDIO

To help visitors gain a greater sense of place for the 1868 Fort Larned historic scene, audio tracks should be played in several of the refurnished rooms or room complexes. The following rooms or areas are suggested:

- either of the infantry company barracks complexes (HS-1 or HS-2)
- the post hospital in the east barracks (HS-2)
- the blacksmith shop in the shops building (HS-3)
- the post school room in the new commissary (HS-4)
- the quartermaster's issue room in the quartermaster's storehouse (HS-6)
- the parlor of the commanding officer's quarters (HS-8)
- the married officers' rooms in either or both the north and south duplex officers' quarters (HS-9 and/or HS-7), perhaps particularly the post chaplain's quarters
- the outer office (post adjutant's office) of the reconstructed post headquarters building
- the store area of the reconstructed post sutler's store building
- the billiards room of the reconstructed post sutler's store building
- the reconstructed sutler's mess room
- the double storage room area and perhaps in the stall area in the reconstructed cavalry stable building

These soundscapes should be composed of combinations of vignettes of conversational dialogue with ambient room sounds, void of narration. These sound tracks could be activated by the approach of visitors. The delivery system should also be equipped with a shut-off switch for times when park staff and/or volunteers are interpreting the areas.

AUDIO TOUR

To provide the best possible interpretive experience, especially during periods of limited staffing, an individual audio tour should be provided. A compact disc (CD) format would be most appropriate due to the durability of CDs and their random access capabilities, which would allow the buildings and sites to be visited in any order. The CD should include alternative tracks, including a track for children, a track for foreign languages, or a verbal description for the visually impaired. An audio tour might also be the most cost effective and least intrusive way to provide ambient soundscapes. If the soundscapes are part of the audio tour, there will be no equipment installation impacts to the historic buildings.

PARKWIDE WAYSIDE SYSTEM

The parkwide wayside system will be composed of wayside exhibits on the visitor center deck or overlook, the self-guiding interpretive trail beyond the old stream bed oxbow, the detached Santa Fe Trail ruts area, and the picnic area.

Visitor Center Waysides

Two wayside exhibits, one interpreting the surrounding prairie grasslands and one the Santa Fe Trail, have been proposed as part of the new visitor center/park headquarters complex.

Self-Guiding Interpretive Trail Waysides

Five to seven wayside exhibits should be installed along the one-mile interpretive (history/natural history) trail that guides park visitors out around the old oxbow of the Pawnee Fork and continues on around the east and south perimeters of the post. To ensure the historic integrity of the core of the fort, all existing waysides must be removed from the core historic quadrangle area and no new waysides exhibits should be installed in that area.

One of the new waysides should be an introductory trailhead wayside located on the earth berm at the start of the trail, beyond the historic shops building (HS-3).

The remaining four to six exhibits will be low profile interpretive waysides at various locations all along the trail. Suggested subjects for these exhibits are:

- the old post cemetery site inside the oxbow
- the oxbow of the Pawnee Fork
- the support facilities and outbuildings, focused on the grouping of stables and corrals
- the historic mail station
- the panoramic view to the east, including the first site of Fort Larned, originally called the "Camp on Pawnee Fork", and the location of the quarries that yielded building stone for the fort's construction of buildings in 1868
- the Santa Fe Trail approach to Fort Larned
- the difference between vegetation at the fort today and during the historic period

Since it is difficult to visualize the size and location of the post's adjunct support structures and facilities, some graphics should be prepared to bridge the visualization gap. One possibility could be the use of illustrations which visually impose the outlines of previously existing structures, such as stables and corrals or the mail station complex, upon the existing landscape, perhaps using half-tone lines for outlines of the missing structures.

Detached Trail Ruts Area Waysides

Two low-profile interpretive wayside exhibits will be installed at the viewing platform at the detached 44-acre Santa Fe Trail ruts area. One of these exhibits will interpret the traces and ruts of the historic Santa Fe Trail, while the other will interpret the natural history and native plants in this intact, undisturbed section of native prairie.

Consideration should be given to reconstructing, and perhaps even relocating, the existing viewing platform.

Picnic Area Wayside

A general park orientation/introduction wayside should be installed at the picnic area along Kansas Highway 156 if it is retained in its existing location. This wayside might be augmented with either an audio station or a transmitter for the park's new travelers information station broadcasts.

PUBLICATIONS

The park has two major publication needs — a general site-specific publication and an upgraded revision of the unigrid park folder.

The site-specific publication could be an official NPS historical handbook. The publication should include a self-guiding section containing the graphics and text for subjects in the historic core area that otherwise might have been presented on interpretive wayside exhibits. This section should particularly include interpretive material for the area south of the quartermaster/commissary row, including the cavalry stable and the post sutler's complex and the area behind or north of the barracks row, including the laundresses' quarters and the old adobe hospital.

The current version of the park's unigrid folder does not adequately incorporate the primary park interpretive theme that states, "the culture and the lifestyle of the Plains Indians was irreversibly altered by encroaching non-native cultures." The text in the folder must be revised to include this theme. Consideration should be given to the inclusion of more colorful graphics.

PERSONAL SERVICES INTERFACE WITH MEDIA

Personal services — both interpretive and informational — will continue to play an important role in the regular operation of Fort Larned National Historic Site.

Visitor Center and Uniformed Interpretive Services Staffing

The key interpretive services for the park will be the staffing and operation of the visitor information/orientation desk in the lobby of the visitor center. In addition to orienting visitors to the national historic site and providing basic site visit information, the employees staffing this lobby desk have primary responsibility for:

- routine daily operation of the visitor center, including the operation of the audiovisual program in the theater

- daily fee collection operations

- sales of publications offered by the Southwest Parks and Monuments Association

As the available paid staff allows, the park will continue to provide a variety of interpretive/visitor services, including:

- fixed station interpretation (quite often as living history)

- conducted tours (sometimes as costumed interpretation)

- interpretive programs and demonstrations (sometimes as costumed interpretation)

- roving interpreter assignments

Living History/Costumed Interpretation

The management, inspiration and vital nucleus for the park's extensive living history/costumed interpretation program is provided by the park's interpretive staff. The broad-based, extensive, strong program is and should continue to be staffed by a substantial, dedicated group of volunteers. The training, logistics, inspiration, guidance, and management necessary to maintain this interpretive enrichment program should continue to receive priority consideration while the fort's interpretive operations are being planned.

FORT LARNED KANSAS.

Sutler's Store
 Dimensions: 20 ft front by 30 ft deep and 10 ft high.
 Foundation: 2 ft wide and 1 ft high.
 Walls: 1 ft thick and 10 ft high.
 Floor: 1 ft thick and 10 ft high.
 Roof: 1 ft thick and 10 ft high.
 Cost: \$1,000.

Stabling and Corral

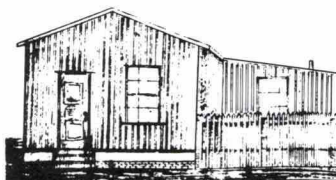
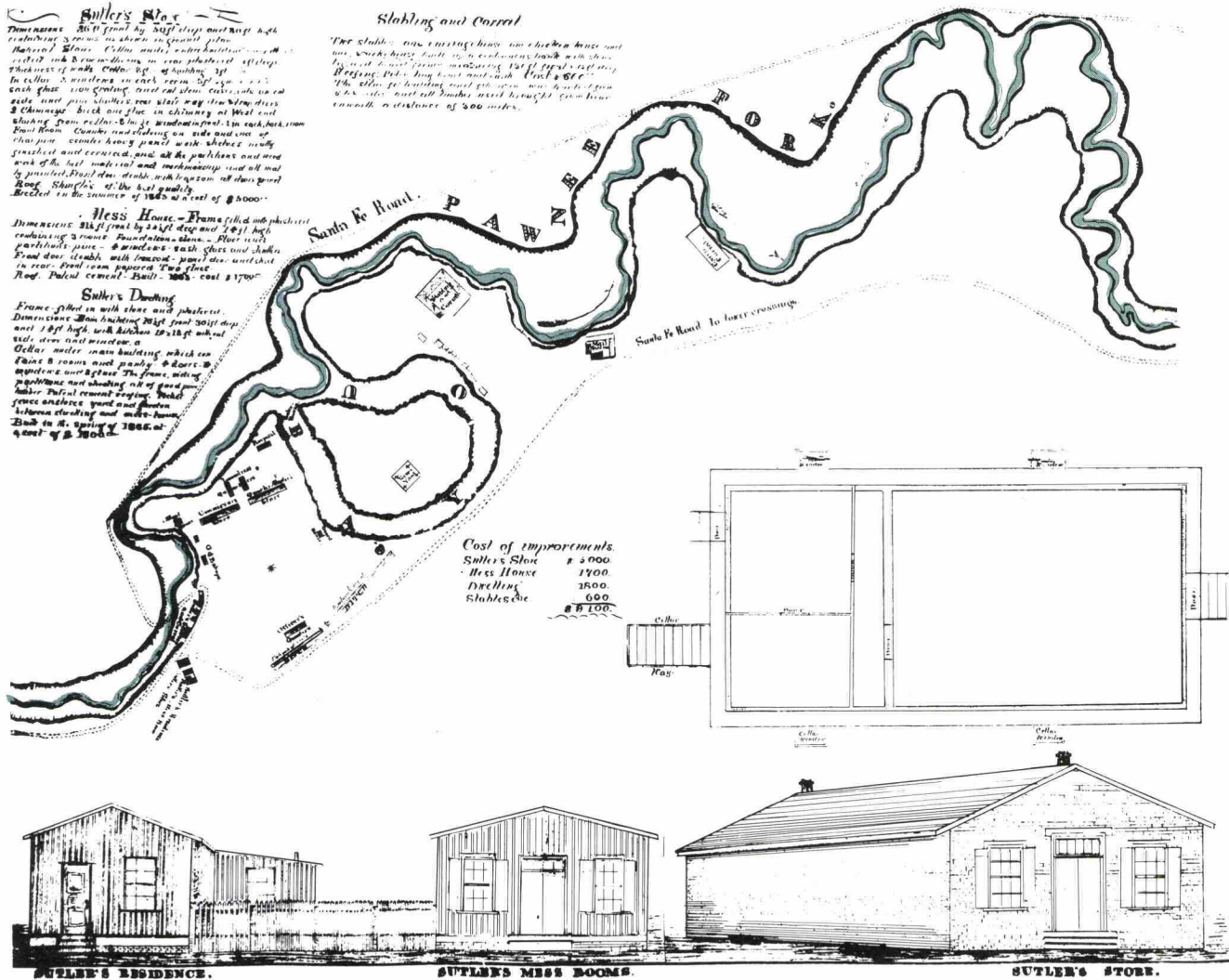
The stables were arranged in a long line and were built of adobe. The corral was built of adobe and was 100 ft long and 50 ft wide. The stables were built on the east side of the corral and the corral was built on the west side of the stables.

Mess House
 Dimensions: 20 ft front by 30 ft deep and 10 ft high.
 Foundation: 2 ft wide and 1 ft high.
 Walls: 1 ft thick and 10 ft high.
 Floor: 1 ft thick and 10 ft high.
 Roof: 1 ft thick and 10 ft high.
 Cost: \$1,000.

Sutler's Dwelling

Frame filled with stone and plaster.
 Dimensions: 20 ft front by 30 ft deep and 10 ft high.
 Foundation: 2 ft wide and 1 ft high.
 Walls: 1 ft thick and 10 ft high.
 Floor: 1 ft thick and 10 ft high.
 Roof: 1 ft thick and 10 ft high.
 Cost: \$1,000.

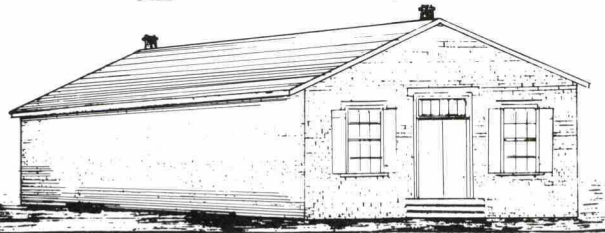
Cost of improvements
 Sutler's Store \$1,000
 Mess House 1,000
 Dwelling 600
 Stables etc 600
 \$3,200



SUTLER'S RESIDENCE.



SUTLER'S MESS ROOMS.



SUTLER'S STORE.

APPENDIX A: HYDROLOGIC ANALYSIS OF THE PAWNEE RIVER

HYDROLOGIC ANALYSIS OF THE PAWNEE RIVER IN THE VICINITY OF FORT LARNED NATIONAL HISTORIC SITE, KANSAS

By
Michael Martin
Hydrologic Technician, Water Operations Branch

INTRODUCTION

Fort Larned National Historic Site is located on the Pawnee River in central Pawnee County, south central Kansas. The fort grounds are approximately six miles west of the town of Larned, just south of Kansas State Highway 156, and within the Arkansas River Lowlands physiographic province. The fort grounds encompass a portion of the modern channel of the Pawnee River, an abandoned meander, and three alluvial aquifer wells (Figure 1).

In the early part of the 20th century, a small dam was constructed on the Pawnee River about two river miles downstream from the fort grounds. Sediment deposition has almost filled the channel behind the dam and rendered it ineffective for water storage. Park management is interested in removing the dam to restore a more historic appearance to the channel and, possibly, perennial flow to the river.

The Pawnee River has undergone considerable downcutting and channelization in the vicinity of the Fort. The banks and channel are covered with dense riparian vegetation. Flow in the Pawnee is intermittent, supported only by local storm runoff.

The purpose of this report is to present the results of a study that determined the extent and depth of channel aggradation at Fort Larned National Historic Site, as well as its effect on present stream flow. Throughout this report a distinction should be maintained between the terms historic and natural channels. The natural channel will mean the geomorphic configuration that was present throughout most of the river's history, while the historic channel will coincide with the morphology present at the time of the fort consignment.

The principal objective of this study is to reasonably predict the effects of dam removal on channel morphology and flow regime for the Pawnee River, in the vicinity of Fort Larned, Kansas.

PAWNEE RIVER AND FLOODPLAIN SURVEY

A survey of the Pawnee River was accomplished using a Lietz Set-4 total station during two separate trips in November 1991 and April 1992. Four points common to the two surveys were located and a

APPENDICES

common datum was established between the park and the downstream dam. Cross section locations were established and surveyed beginning in the vicinity of the dam and moving progressively upstream.

A total of 77 points were surveyed including nine cross-sections in the present channel of the Pawnee, two dam elevations, a high water mark located on a bridge pier, three water-table elevations, and channel elevations of the abandoned meander located east of the parade grounds (Table 1). Elevations were taken relative to an arbitrary datum of 100 ft. assigned to a bench mark located approximately 200 feet west of well #1 near the park entrance from State Highway 156.

Table 1. Location and elevation of survey points in the vicinity of Fort Larned National Historic Site.

Location	Elevation (ft.)
Channel Above Dam	83.46 (mean)
Channel Below Dam	73.92
Bank	96.58 (mean)
Oxbow Channel	91.00
Water Table	74.66 (mean)
Top of Dam	89.98
High Water Mark	90.31

RESULTS

The mean channel elevation above the dam was 9.5 feet higher than the channel elevation below the dam (Table 1). Elevations taken in the channel above the dam had a range of 1.3 feet over about 4500 feet of channel length, indicating a fairly uniform channel elevation as a result of sediment deposition. The mean bank elevation was higher than the mean channel elevation above and below the dam by approximately 13 and 23 feet, respectively (Table 1). The mean bank elevation was 5.5 feet higher than the oxbow channel elevation, and the mean elevation of the present channel upstream from the dam was about 7.5 feet below the channel in the oxbow.

The present channel in the vicinity of the Fort is about eight to nine feet above the water table (Figure 2). The channel elevation below the dam is slightly lower (0.7 feet) than the water table elevations measured on the Fort grounds. Additionally, surface water was observed in the channel of the Pawnee below the dam during the November survey.

The high water mark on the bridge pier north of the parade grounds appeared to represent a level of flow that was attained periodically. The elevation of this high water mark was slightly higher, 0.3 feet, than the top of the downstream dam (Figure 3), indicating that the presence of the dam places some control on water level in the channel.

DISCUSSION

Morphologic changes in alluvial rivers over the last 150 years have been documented by Schumm and Nadler (1981); and Dunne and Leopold (1978). Prior to settlement, alluvial rivers draining the east slope of the Rocky Mountains are thought to have been straight, wide, braided, and supporting intermittent flow. [Between 1885 and 1897 irrigation raised water tables, and flood control resulted in lower peaks and more uniform flow.] With more available ground water and fewer peak flows to erode the channel and banks, riparian vegetation became well established on the floodplains, restricting flow and narrowing the channels. These rivers subsequently underwent a transformation from braided to meandering. Additionally, downcutting began in these alluvial valleys between 1880 and 1900. This downcutting is attributed to an increase in daily flows resulting from greater summer storm intensity and heavy stock grazing (Leopold, 1951).

Examination of the abandoned meander on the Fort grounds indicates that the Pawnee River also had a much different morphology in previous times. The channel width was greater (Figure 1), and the channel elevation was considerably higher as evidenced by the oxbow channel elevation (Figure 2). The elevation of the oxbow channel should be taken as a maximum channel elevation of the former Pawnee River because some sediment likely has been deposited in the meander after it was abandoned by the river. These observations are consistent with the findings of the previous researchers regarding downcutting and channelization, and suggest that the Pawnee has undergone morphological changes similar to that of the Platte and the Arkansas Rivers.

The time period that downcutting took place on the Pawnee is apparently prior to the time of fort consignment. Multiple personal observations indicate that the Pawnee River was already incised and channelized, with established riparian vegetation in the late 1850's. This is approximately 20 years earlier than previous estimates for the Platte and Arkansas, and may be indicative of natural downcutting as a result of river gradient increase, (Schumm et al., 1984). Additionally, the Pawnee River was originally of meandering form rather than braided, this is evidenced by the presence of numerous abandoned meanders in the vicinity of the river.

The dam was installed downstream of what is now Fort Larned National Historic Site between 1911 and 1915, after channelization

APPENDIXES

and downcutting of the Pawnee had occurred. The channel above the dam has aggraded, due to sediment accumulation through the monument. However, aggradation has not been great enough to return the river bed to its pre-incision elevation, as evidenced by the oxbow elevation. As a result of this aggradation, the channel in the vicinity of the fort is significantly higher than the local water table (Figure 3), thus eliminating base flow releases to the river in this area.

CONCLUSIONS

Channel Restoration

Observations of the Pawnee River indicate that as much as nine to ten feet of sediment has filled the channel in the vicinity of Fort Larned National Historic Site. Removal of the dam would cause erosion and subsequent downcutting, likely to the level of the channel below the dam. The amount of time required for complete erosion to take place is not predicted, but could be on the order of a few years or decades. The erosion and downcutting that would take place would serve to further alter the river morphology from its natural (pre-incised) configuration. This conclusion is supported by the observation that considerable downcutting has taken place since the river abandoned its previous channel, as is evidenced by the disparity of oxbow and present channel elevations. The resulting channel with greater incision, however, may more closely approximate the historic morphology, that present at the time of fort consignment.

Another consideration in dam removal is the short term, increased sediment load to the Pawnee River at times of flow. This sediment would ultimately be deposited at another, possibly undesirable, downstream location.

Restoration of Perennial Flow

The measured water table elevations are considerably lower than the elevation of the channel in the vicinity of the Fort (Figure 3). Because most streams are supported by the local water table between periods of storm runoff (Driscoll, 1989) the disparity between measured channel and water table elevations supports the observation that considerable aggradation has taken place. Other factors such as prolonged drought conditions, over-pumping of the aquifer, or increased base flow to streams as a result of incision may cause a lowering of the water table. Data gathered by the United States Geological Survey (USGS) indicate that water table elevations have declined in central Pawnee County in the past few decades (Dague, 1987).

Complete erosion of the sediment behind the dam could possibly restore perennial flow to the Pawnee River, but this is by no means conclusive. Water table elevations measured in November of 1991

were at about the same elevation as the channel downstream from the dam, but were not significantly higher. Standing water that was observed in the channel downstream of the dam in November was not present in April, indicating that hydrologic communication existed between the channel and the water table for only part of the year. At no time was any discernable base flow observed anywhere in the Pawnee River channel.

Decreased Flooding

River stage during high flows is apparently controlled by the presence of the downstream dam in the vicinity of the Fort. It can be reasonably concluded that removal of the dam and subsequent downcutting of the channel will reduce the river stage during times of flow and thus, reduce flood potential.

A decrease in river stage during high flows would almost surely be achieved through removal of the dam, with a resulting increase in degree of flood safety. This increased degree of safety may not apply to extremely high flows; i.e., 100- and 500- year floods, where the flood waters may break out of the channel upstream and inundate low lying areas. Without performing a detailed flood analysis of the Pawnee watershed, it cannot be conclusively stated how water surface elevations during large floods would be affected by dam removal. Given the size of the watershed and the flat topography, it is fairly safe to assume that the flood risk during high flows, 100- and 500-year recurrence interval floods, would not be greatly diminished.

SUMMARY

The Pawnee River has undergone numerous morphologic changes in recent geologic time, the most striking of which is a narrowing and deepening of the channel thought to have occurred prior to fort consignment. Construction of the impoundment dam served to raise the channel bottom through sediment deposition. In the event of dam removal, it is reasonable to assume that some erosion would take place and at some time in the future, the channel upstream from the dam would reach equilibrium with downstream channel elevations. Perennial flow could possibly be restored but only with approximately ten feet of channel incision and resulting sediment discharge. If the water table elevation is lowered by pumping, then base flow to the Pawnee River probably can not be restored.

Restoration of the natural channel is probably an impossibility. The present channel morphology is the result of both natural and anthropogenic controls operating over an extended time period. The morphology of the abandoned meander located on the Fort grounds is probably representative of river conditions prior to European settlement and associated land use practices. Removal of the dam, however, may serve to restore the Pawnee River to the approximate

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morphology present during original consignment of the fort, well before dam construction.

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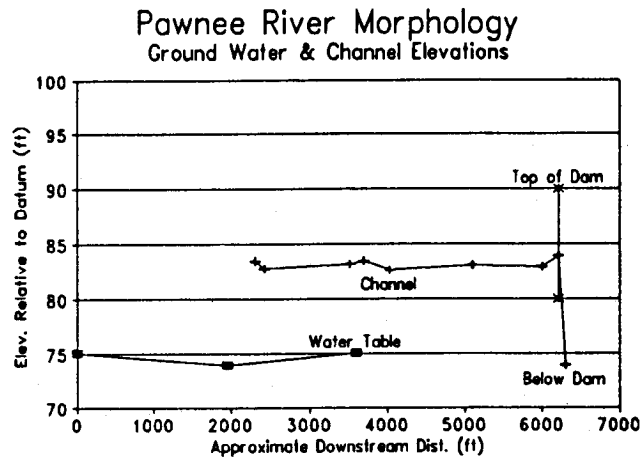


Figure 2. Comparison of channel elevations above and below the dam to water table elevations. X-axis begins at approx. upstream site boundary.

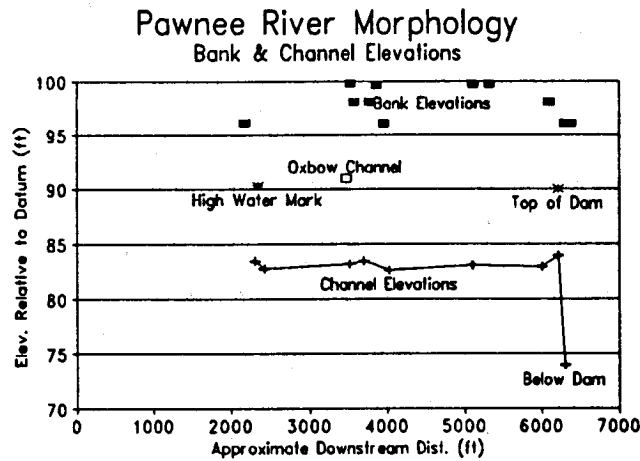


Figure 3. Comparison of bank elevations to present and abandoned oxbow channel elevations. The high water mark was measured on a bridge pier near the Fort. X-axis begins at approx. upstream site boundary.



United States Department of the Interior

NATIONAL PARK SERVICE

WATER RESOURCES DIVISION
301 SOUTH HOWES ST., ROOM 353
FT. COLLINS, COLORADO 80521



IN REPLY REFER TO:

September 10, 1992

L54 (479)
MWRO/FOLS/Floodplain

Memorandum

To: Keith Payne, Denver Service Center, Central Team

From: Gary Smillie, Hydrologist, Water Operations Branch

Subject: Extreme Floods on the Pawnee River in the Vicinity of Fort Larned National Historic Site, Kansas

In response to your phone conversation of August 24, 1991, with Mike Martin, the following is information regarding the nature of extreme flows in the Pawnee River. In particular, I understand that you have questions regarding the flash flooding potential and the need for additional flood investigations for the park.

Considering the mild slope of the Pawnee River watershed and lack of confinement except within the channel prism, we don't believe that flash flooding is a relevant concern in Fort Larned National Historic Site. With respect to your question about the usefulness of an updated flood study to take into account recent changes in the watershed, please refer to the trip report by Larry Martin and Gary Smillie dated August 28, 1991. As stated in the report, the existing FIMA map clearly shows the area of the fort to be within the 100-year floodplain. We believe it is unlikely that watershed changes have resulted in significant changes in the area inundated by the 100- and 500-year floods. We therefore recommend that you use the previously published flood depths of 2042.0 and 2044.7 feet for the 100- and 500-year floods, respectively (COE, 1971) for your planning needs.

If you have any questions concerning the work, please call Michael Martin at (303) 221-8323 or myself at (303) 221-8303.

Gary M. Smillie

cc: FOLS - Superintendent
479 - Kimball, Jackson



APPENDIX B: DESIGN GUIDELINES

INTRODUCTION

The following general guidelines, with some possible design directions noted, should be used as aids in decision making rather than as formulas. They are intended to establish visual quality throughout the park.

The visitor center site design and architecture both contribute to the visitor's learning and understanding. Done well, these will provide a special setting in which the values and spirit of the resource and the interpretive program are clarified and reinforced. Visitor services, administration and maintenance areas, and all other noninterpretive facilities will be designed to compatibly fit the building and site without intruding on the visitor experience.

ARCHITECTURAL ELEMENTS

Historical Perspective

There are clear and significant architectural themes to draw upon for this project because the various fort buildings have been preserved and restored to the historic period of 1868-1878. Structures of that time period must not be duplicated because of possible confusion as to resource authenticity and because duplication could diminish the importance of the original structures.

Assessment of Structures

Fort Larned is listed on the National Register of Historic Places and its nine surviving stone buildings are recorded by the Historic American Buildings Survey. The structures are good examples of American military post architecture during the Victorian period; their significance lies in their unity as a complex, in their high degree of historic integrity, and in their architectural features.

Nonconforming Structures

The maintenance facility is of modern design and materials, and located out of view of the fort.

Architectural Guidelines

The concept of sustainable design recognizes that human civilization is an integral part of the natural world that must be preserved and perpetuated if the human community itself is to survive. This is exemplified in a building design that follows principles of conservation and encourages their application to daily living.

A corollary concept is that of bioregionalism — that life is established and maintained on a functional community basis; that the communities (bioregions) are generally self sustaining, mutually supporting life systems.

Using the concept of sustainable design, the projects will minimize adverse effects on natural and cultural resource values, reflect their environmental setting, and maintain and encourage biodiversity. Facilities will be constructed and retrofitted using energy-efficient materials and building techniques, and

APPENDICES

will be operated and maintained to promote their sustainability. They will illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use.

Climatic Factors

The park is approximately 2,036 feet above sea level, and the land is mostly flat. The local weather patterns show typical interior continental daily and annual variations in temperature and precipitation. Temperatures average 78°F in summer and 34°F in winter, but extremes of 114°F and -24°F have been recorded. About 75% of the 24 inches of annual moisture fall during the growing season of April through September.

Average wind speed is 14 miles per hour, with winds 20 mph and above common throughout the year. The prevailing wind in the summer is from the south to southwest; in winter, it is north to northwest. There are only a few calm days annually.

Summer thunderstorms can be intense with severe winds, hail, and occasional tornadoes. The whole site is within the 100-year floodplain of the Pawnee River, but there are a series of low levees to control water in the park, and according to the NPS Water Resources Division, there is virtually no potential for a flash flood in this area.

Building Considerations

Orientation. Building orientation can maximize possibilities for passive solar heating, help prevent unwanted summer heat gain, and help control the almost constant wind. Alignment can be used symbolically, to locate functions and welcome the visitors, while complementing and reinforcing the interpretive goal and desired visitor experience.

Energy Conservation. This is a continuing goal of the National Park Service. Building orientation, type of construction, quality of construction, and choice and placement of materials and equipment all play a part in the conservation of energy. In addition, renewable sources of energy and new developments in energy-efficient technology, including recycling materials and waste, should be used where appropriate and cost-effective. Properly addressed, these design decisions will reduce long-term operating expenses.

Accessibility. All facilities will be designed to meet guidelines of the most current *Uniform Federal Accessibility Standards* (UFAS) Fed. Std. 795, April 1988 to the greatest extent practical and possible without degrading the historic resources.

Maintenance. Low-maintenance native plant materials should be used at this site. Building materials should be selected for their low upkeep as well as functional and aesthetic properties, and should relate to the character of the historic park structures themselves.

Building Design

Form. An architectural theme will be developed for any new buildings so that they fit into the site, avoiding a contrast that will attract attention to themselves at the expense of existing fort structures. Its roof, for example, can be the dominant building element that immediately and forcefully establishes the theme of a structure. At Fort Larned, such a roof should be compatible with historic precedent, and could be augmented by simplicity of building shape and siting.

Mass. Depending upon the required square footage for the facility, the mass of a building can be manipulated to minimize its apparent size. At Fort Larned, creating ell or linking building elements, for example, could break up the appearance of bulk in a large structure. The visual impact on historic resources and surroundings will be reduced; existing patterns will be maintained.

Scale. The size relationship between new structures and their users should be considered equally as important as that between new and historic buildings. If massing of new buildings respects the massing of historic ones, maintaining the sense of scale should not be difficult. Choosing materials and a level of detail that represent a human scale upon approach, rather than a more monolithic and dramatic one, for example, will reinforce this effect.

Rhythm. Rhythm is created by repeating design elements, such as the sequence of solids (wall surface areas) and voids (window and door openings) in a building facade. Rhythm gives design a sense of order. This ordering of a building can be partly achieved by sizing elements appropriately for their interior function — for example, smaller windows in restrooms, larger ones in office areas and for viewing outdoor points of interest. A sense of military discipline at Fort Larned is reinforced by the relationships of the buildings to each other as well as by a symmetry and regularity of detail within the structures themselves.

Symbolism. A building form or shape can reinforce the intended interpretive theme of the park as well as indicate the purpose of the structure itself. A visitor center, for example, might allude to the headquarters building of a military post where one might go for information. This is not the same as imitating such a facility.

Character. A building can evoke formal or informal feelings. For this facility, the formality of an army post might reinforce the visitor's sense of place and time. The visual character of the visitor center must conform with the lines and spirit of the historic structures without imitating them. A new structure must not be confused with or mistaken for an historic structure, but can complement it architecturally.

Building Entrance. A building entrance sets the stage for the visitor experience, so special consideration should be given to enhancing that encounter in a visitor center. Functional and convenience equipment, such as telephones, vending machines, etc., should not be allowed to distract from the overall character. It is important, too, for the entrance to be clearly defined, leaving no question as to the location. In addition to its symbolic and informational functions, the passage should also provide both visitor and building interior with protection from snow, rain, and, especially in Kansas, wind.

Building Materials

Durability. Building materials, both exterior and interior, will be selected for durability, resistance to vandalism, low maintenance, and aesthetic appeal. This means, for instance, that the traditional use of stone would be appropriate, but the soft sandstone of the historic buildings would not.

Colors. Colors will be selected to complement the site, existing buildings, and surroundings.

Textures. A variety or contrast of textures can enhance the building design by creating interest and appeal, and might also be used to distinguish any new buildings from the historic ones.

Signing. A consistent sign program stressing visual quality, clarity, and historic compatibility should be developed for the park.

Lighting. Exterior lighting is needed for evening activities and for security. Site lighting fixtures should be compatible with other site furnishings and development.

Site Development

Vehicular Access. The entrance should be clearly visible, safe, and self explanatory. Consideration should be given to layout of the entrance road, its visual qualities, intended driving speed, and sequence of views.

Parking. Vehicle parking should be near the visitor center but not blocking primary views from the access road to the building. Parking lanes should accommodate the flow of pedestrians to the central structure, fit with the topography, and not cause undue impact to existing vegetation. Parking areas should be defined by planting bays and shade trees as possible.

Circulation and Walks. Pedestrian routes should minimize conflicts with vehicles, provide direct access (in accordance with the UFAS guidelines), and offer pleasant encounters. Materials should be consistent with those of the historic period (1868-1878) within the historic core area to reinforce the intended visitor experience, complement the architecture, and still provide maximum accessibility. Materials commonly used in the historic period include compacted earth, gravel, and wood.

Site Furnishings. Site furniture provides important background support for visitor comfort and convenience. Their placement and design must reflect the architectural and historical period established for development. They must also be easy to maintain and vandal resistant.

Fences, Handrails, and Walls. There are places where these may be needed for screening, for directing visitors, or for safety, such as at grade changes. Their design should complement other landscape and architectural elements and be used consistently throughout the development.

Signs. Entrance, directional, and traffic control signs are all required. The design of the site itself should make access routes and circulation patterns fairly self evident so that the need for signs is minimized. Planning for signing should be consistent in style, design, and placement throughout the park.

Plant Materials. Plant materials will reinforce the design concepts and provide for visitor enjoyment. Native plant species will be chosen based on their hardiness, interpretive potential, and maintenance demands. The introduction of exotic species would undermine the visitor's understanding of vegetation in the area during the late 1800s.

Grading and Drainage. Grading and drainage must be positive and should blend with existing topography. Roads and parking will be designed with surface drainage as much as possible to minimize subsurface drainage structures. Any stormwater collected will be dispersed on site or placed unobtrusively into existing water courses.

APPENDIX C: STATEMENT OF FINDINGS AND FINDING OF NO SIGNIFICANT IMPACT

STATEMENT OF FINDINGS FOR FLOODPLAINS FORT LARNED NATIONAL HISTORIC SITE

Background

The major resources at Fort Larned are the nine original historic sandstone buildings which comprise the fort and define its central parade ground. Currently all visitor and administrative facilities are housed within the historic buildings. Maintenance operations are located at a modern facility about 0.25 mile west of the historic fort site.

Visitation at Fort Larned has steadily increased causing increased wear on the historic structures, especially the visitor center and administrative offices in barracks HS-1. The visitation increases are projected to continue, but there is no expansion space in barracks HS-1. Some essential visitor facilities (parking lot, access road, bridge, etc.) intrude on the historic core area scene, degrading the visitor experience. Circulation for visitors and staff is inconvenient. To solve the problems and protect the resources, yet maximize visitor access to the site, the 1994 General Management Plan Amendment and Development Concept Plan prescribes that:

- the historic structures and historic core area be restored to their 1868-1878 appearance;
- the stable, adjutant's office, and sutler's complex will be reconstructed;
- a new visitor center/administrative building be developed outside the historic core area;
- pedestrian and vehicular access routes and parking be provided outside the historic core;
- maintenance facilities be expanded at their present site; and
- modern intrusions on the historic core scene be removed or visually screened.

A site west of the historic core area and the Pawnee River Channel was selected to develop the visitor center and administrative building. This site is about 800' from the historic core area, physically separated from it by the Pawnee River channel, and visually screened from it by mature trees and understory vegetation along the river channel.

Alternative Locations

Since the entire park is within the 100-year floodplain there is no practicable alternative to the site selected for the new visitor center/administrative building. The building is located as close as possible to the resources while still maintaining the separation of modern facilities and historic resources, and enhancing management efficiency and the visitor experience. Maintenance will be expanded in its present location to maintain efficiency and preserve the capital investment in structures and facilities there.

Since there are no alternative sites for the proposed development, no analysis of comparative flood risk for alternative sites was made.

Description of the Flood Hazard

All fort structures and property (except the 44-acre Santa Fe Trail Ruts site 6 miles to the south) are within the 100-year floodplain of the Pawnee River defined by the Corps of Engineers in 1971. The floodplain at the fort is about 15,500 feet (3 miles) wide with its northern edge about 1,300 feet north of the northern park boundary and its southern edge about 10,000 feet (2 miles) south of the southern park boundary. The 100-year flood elevation just west (upstream) of the park was estimated in 1971 to be approximately 2,042 feet above sea level. Based on that elevation and assuming that it remains constant as it flows east over the entire site, flood water would be approximately 7 feet deep over the parade ground (2034'), 5 feet above the first floor levels of buildings HS-1 through HS-4 (2037'), 7 feet above the first floor levels of buildings HS-5 and HS-6 (2035'), 4 feet above the first floor levels of buildings HS-7 through HS-9 (2038'), 5 feet above the average elevation of the visitor center/administration building development site (2037'), 2-1/2 feet above the first floor elevation of the maintenance building (2039.5'), and 4 feet above the apparent average top elevation of the levee (2038'). The Corps of Engineers estimated the 500-year flood elevation to be 2044 feet above sea level. Velocities for the 100- and 500-year floods would be very low due to the extremely low gradient of the Pawnee River.

There is no record of a 100-year magnitude flood at Fort Larned National Historic Site. Significant floods have occurred in outlying areas of Pawnee County in 1921, 1935, 1942, 1950, 1951, 1958, and 1965. The highest of these floods on the Pawnee River was in 1958, and it was considered to be of nearly 100-year magnitude. There are no records describing the impact of that flood at this specific site, so the elevation of flood waters at the fort from that event is not known.

The original fort was constructed where it exists today, so the historic structures have always existed in the floodplain. In the 1920's, during the park's ranching period, a low levee was constructed along the south bank of the Pawnee River. No flood waters have topped the levee or entered the historic core area since the park service acquired the site in 1964. The only recorded instance of flooding in the historic core area was in the 1870s when water entered the lowest structure there, the Old Commissary (HS-5).

The most recent flood at the park was in 1993 and was caused by an incomplete flood control structure west of the park at the new county road bridge. During a long period of rains the ground became saturated and the water in the river rose to a level that normally would seal a "flapper" gate at the bridge. That gate had not yet been installed in its headwall and the river flow went through the unprotected opening, flowed north along the county road west of the park until it reached a low spot, and then crossed the road and flowed eastward across the park's prairie in a sheet. The shallow flow crossed the entrance road about 6" deep and reentered the Pawnee River channel just south of the picnic area. The flood water never entered the historic core area, but it filled the channel and came within inches of topping the levee during this event. Although the maintenance building west of the historic core area has never been flooded, the flood water crossed the maintenance area access road and flowed across the fields south of the fort. The development site for the visitor center and administrative facilities and the maintenance site were not flooded by this event.

More than 70 farm related water retention structures have been erected on the Pawnee River watershed upstream from Fort Larned since the Corps of Engineers floodplain delineation was made in 1971. Within the last 5 to 10 years the Pawnee Watershed District has erected two large flood control and recreational reservoirs on the Pawnee River upstream from the fort near Jetmore, Kansas. The effect of these structures on flooding at Fort Larned has not been quantified but probably has reduced the elevations of the 100- and 500-year floods. The same topographic and stream gradient factors remove flash flooding as a relevant concern at Fort Larned.

Environmental Impacts of the Proposed Action

All the fort structures and property (except the 44-acre Santa Fe Trail Ruts site 6 miles to the south) would remain within the 100-year floodplain of the Pawnee River and exposed to flood hazards. The flood hazard exposure is necessary to preserve the integrity of the historic structures and the historic core area of the fort.

Flood Mitigation Measures

Flood mitigation will involve floodproofing the basement of the visitor center/administration building, improving drainage at its site, raising the structure to the greatest extent possible, providing all-weather access to a loading dock for emergency evacuation of artifacts in the event of a flood, and developing a flood emergency plan including a flood warning system, evacuation plan, and clean up plan. Mitigation measures may also include using levees or dikes to divert flood flows away from new developments. New structures outside the historic core area would be elevated on earthen pads or enclosed by levees to remove them from the floodplain.

The historic structures were constructed in the floodplain by the military to accomplish the military goals of the fort. The buildings and historic core site will remain as they are in order to preserve their historic integrity, the historic scene, the surviving resources, and the quality visitor experience. Artifacts in the historic structures will be evacuated as provided in the flood mitigation plan.

Since flash floods are virtually unknown on this part of the Pawnee River and flood conditions take several days to develop, there is ample warning time to accomplish the provisions of the flood emergency plan provided there has been thorough advance and contingency planning.

Effect on Natural or Beneficial Floodplain Values

None of the proposed actions in the General Management Plan/Development Concept Plan for Fort Larned would adversely affect the water resource values of floodplains related to the moderation of floodwaters, maintenance of water quality, and ground water recharge. No living resource values would be affected. The natural and beneficial values of the floodplains would not be adversely affected (see "Environmental Consequences" section of the draft General Management Plan/Development Concept Plan/Environmental Assessment). Short

term disruption of vegetation and soil loss by construction activities would not increase the potential for erosion or downstream siltation in the event of normal storms.

Conclusion

The National Park Service considered several alternatives and selected the proposed actions described above as the preferred course of action. The decision was based on the need to provide adequate visitor and administrative facilities, improve the visitor experience, and improve resource protection. The risk to human safety is insignificant because there is no permanent housing in this park, and virtually no chance of flash flooding there. The risk will be further minimized by removing new structures from the flood zone by raising them or building protective levees around them, and by implementing a Flood Emergency Action Plan for the entire park.

Recommended: *Dan B. Kinsch* 11-4-94
Chief, Water Resources Division Date

Recommended: *Vern E. Hunt* 11/8/94
Regional Safety Officer, Midwest Region Date

Recommended: *Dan K. Hylander* 11/10/94
Regional Compliance Officer, Midwest Region Date

Acting
Approved: *William A. Hunt* 11/17/94
Regional Director, Midwest Region Date

FINDING OF NO SIGNIFICANT IMPACT
**Fort Larned General Management Plan/Development Concept Plan/
Environmental Assessment**

The National Park Service has prepared a *Fort Larned General Management Plan/Development Concept Plan/Interpretive Prospectus* for Fort Larned National Historic Site, Kansas. The plan, to which this finding of no significant impact (FONSI) is appended, describes the methods available to preserve, protect, interpret, and administer the resources of Fort Larned National Historic Site. The plan also describes the studies and development necessary to achieve those goals.

A *Draft Fort Larned General Management Plan/Development Concept Plan/Interpretive Prospectus/Environmental Assessment* was on public review for 42 days beginning on June 20, and ended on August 1, 1994. A public meeting was held at Fort Larned on July 7, to receive public input. In addition, copies of the document, which included a postage-paid pre-addressed response and comment form, were mailed to all persons who had expressed interest in the plan. These persons and entities included interested agencies and individuals, Federal, State, and local government agencies, and Native American tribes. Comments on the draft plan were received until the end of the review period.

The environmental assessment (EA) prepared for the plan analyzed the impacts of the no action alternative, and four alternative management strategies for the historic site. A complete evaluation of the potential impacts of each alternative considered can be found in the *Draft Fort Larned General Management Plan/Development Concept Plan/Interpretive Prospectus/Environmental Assessment*, dated June 1994.

Based on the EA, the NPS has arrived at the following conclusions:

Compliance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470 as amended), for this level of planning, has been completed. Several of the actions proposed under the plan will require further review by the State Historic Preservation Officer and the Advisory Council on Historic Preservation before implementation. These actions are listed in Table 14 of the plan.

No threatened or endangered species or critical habitat exist at Fort Larned National Historic Site. Therefore, the proposed action will not adversely affect any Federally listed threatened or endangered species or their critical habitat. This satisfies the requirements of the Endangered Species Act, as amended, (16 U.S.C. 1531-1543).

There is no practicable alternative to construction in the 100-year floodplain. A Statement of Findings has been prepared in compliance with Executive Order 11988 "Floodplain Management" and is appended.

Implementation of the proposal will not constitute an action which normally requires the preparation of an environmental impact statement (EIS) (40 CFR 1502.3; 516 DM 6, Appendix 7.3). The proposed action is not a categorical exclusion within the contemplation of 40 CFR 1501.4 and 1508.4.

Implementation of the proposal will not have a significant (40 CFR 1508.27) effect on the quality of the human environment. Adverse impacts which could occur are expected to be minor and generally short-term in effect. There will be no adverse impacts on the public health or safety; rare, endangered or threatened species; sites listed or eligible for listing on the National Register of Historic Places (NRHP), or other unique characteristics of the locale or the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects or elements of precedence were identified. Implementation of the proposal will not violate any Federal, State, or local law.

Based on the foregoing, it has been determined that an EIS is not required for this project and therefore, one will not be prepared.

Acting

W. Allen W. Smith
Regional Director, Midwest Region

11/16/14
Date

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