



National Park Service
U.S. Department of the Interior
Yellowstone National Park
Wyoming, Montana, Idaho

Tower-Roosevelt Comprehensive Plan Environmental Assessment



June 8, 2009

TOWER-ROOSEVELT COMPREHENSIVE PLAN ENVIRONMENTAL ASSESSMENT

EXECUTIVE SUMMARY

The National Park Service (NPS) proposes to implement the Tower-Roosevelt Comprehensive Plan/Environmental Assessment (TRCP/EA) in Yellowstone National Park.

As facilities age and visitation patterns change, there is a need to alter or improve visitor services, facilities (buildings, roads, and paved parking areas), and utilities. Changes may include the addition, removal, replacement, or improvement of buildings, roads, parking areas, and utility systems. These development projects have the potential to impact the park's natural, cultural, and visual resources and visitor experience. Yellowstone National Park has developed a comprehensive plan that protects park resources, values, and visitor experience in the Tower-Roosevelt area by defining boundaries, limits, and standards of where and how development and redevelopment can occur. It defines a benchmark of desired conditions for resources and visitor experience that is based on the Tower-Roosevelt area's significance and fundamental resources and values. The plan sets *acceptable limits of change* to development that supports these desired conditions. Finally, the plan proposes possible projects that help achieve the desired conditions for resources and visitor experience while remaining within the scope of the acceptable limits of change for the Tower-Roosevelt area.

The comprehensive plan provides a framework for decision-making that NPS staff, managers, and partners would use when developing and evaluating project proposals for this area. Rather than evaluating projects individually, on a case-by-case basis with separate environmental compliance analysis, Yellowstone National Park proposes to use this framework to identify suitable locations, building sizes, functions, and design standards already assessed for environmental impacts and determined to be within acceptable limits of change for the area.

The TRCP/EA evaluates three alternatives for the proposed comprehensive plan. Alternative A: *No Action*, Alternative B: *Medium Level of Change*, and Alternative C: *Low Level of Change*. The park has not selected a preferred alternative. Alternatives B and C, the action alternatives, utilize different levels of acceptable limits of change, which consist of three distinct components used in combination: buildable planning zones (location and extent of change), planning prescriptions (primary function and maximum size of change), and design standards (characteristics of change). The action alternatives differ in the locations and sizes of the buildable planning

Fundamental Resources and Values are important systems, processes, features, visitor experiences, stories, scenes, sounds, or other resources and values that warrant primary consideration during planning because they contribute to the significance of the Tower-Roosevelt area, the park significance, and/or are critical to achieving the park's purpose.

Acceptable limits of change are guiding principles that define restrictions on what kind, where and how much development and redevelopment can occur in the Tower-Roosevelt area, without resulting in unacceptable impacts to natural, cultural, visual resources or visitor experience. They help achieve desired resource conditions and visitor experiences.

Desired conditions for resources and visitor experience are benchmarks for natural, cultural, and visual resources and visitor experiences that are to be achieved while considering changes to the built environment in order to preserve the area's significance and fundamental resources and values.

zones and the sizes of the development footprints—and therefore some of the future possible projects that are being considered.

Most of the differences in impacts in the alternatives of the Tower-Roosevelt Comprehensive Plan occur in Health and Human Safety, Visual Quality, Visitor Use and Experience, and Park Operations. The Tower-Roosevelt Comprehensive Plan identifies natural and cultural resources, especially those protected by law or policy and are intended to be avoided or mitigated. Action Alternatives B and C both use the planning components to keep impacts to natural and cultural resources at a minimum.

In the No Action Alternative A, no comprehensive plan would guide future change to visitor services, facilities and utilities. Alternative A assumes existing conditions would likely remain the same; however projects could be proposed and be evaluated on a case by case basis using separate environmental compliance analysis. The impact analysis of Alternative A assumes that without a comprehensive plan to guide future development, future actions could lead to unanticipated cumulative impacts and fundamental resources and values could be incrementally altered.

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet objectives of the proposal, 2) evaluates potential issues and impacts to Yellowstone's resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. The park conducted public scoping from May 26 to June 30, 2006 to assist with the development of this plan; comments were received in support of developing the plan. No major impacts are anticipated as a result of this project. Implementation of the proposed action would not result in unacceptable levels of impacts to park resources. Comments received during the public review of this document would be considered in the subsequent selection of a preferred alternative and final plan. During public comment, the park is seeking additional possible projects that might be added to the plan.

How this Tower-Roosevelt Comprehensive Plan/Environmental Assessment is Organized

The following summarizes the organization and highlights important sections of this document for the reader:

Chapter 1: Purpose and Need explains the basis for the Tower-Roosevelt Comprehensive Plan, the planning process, and background information on National Park Service policies and planning efforts that guide this analysis. The Project Area is indicated in Figure 1 and the Area Features and Planning Locations are shown in Figure 2. The Comprehensive Planning Process is illustrated in Figure 3, while the Planning Components are illustrated in Figure 4. There is also a section describing desired conditions for resources and visitor experience in the Tower-Roosevelt area and a list of resource impact topics important for evaluating alternatives.

Chapter 2: Alternatives Considered describes the proposed alternatives in detail. Figure 5 compares alternatives Figures 6 through 13 illustrate the planning components for each alternative by locations in the Tower-Roosevelt area. Table 1 summarizes environmental impacts by alternative. Table 2 compares alternatives based on their success in achieving the objectives; and Table 3 evaluates possible projects by alternative.

Chapter 3: Affected Environment describes the existing environmental conditions in the Tower-Roosevelt area for those resource impact topics identified in Chapter 1. The information in this chapter provides the baseline for analysis.

Chapter 4: Environmental Consequences discloses the environmental effects of the proposed alternatives on the resource impact topics identified in Chapter 1 and described in Chapter 3. This chapter is organized by resource impact topic. For each resource topic, methodologies, assumptions, intensity levels and thresholds of change are identified followed by details on impacts for each alternative.

Chapter 5: Consultation and Coordination describes the scoping conducted for this plan/EA and lists those who prepared the document.

Appendices: Provide a blank project evaluation form (Appendix A) and resource maps for all surveyed areas (Appendix B).

Public Comment

You may submit written comments through the NPS Planning, Environment and Public Comment (PEPC) internet website (<http://parkplanning.nps.gov/yell>) or mail them to the superintendent at the address below. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comments (including your personal identifying information) may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. Comments are due by midnight, July 8, 2009 MDT.

Superintendent
Yellowstone National Park
Tower-Roosevelt Comprehensive Plan EA Comments
P.O. Box 168
Yellowstone National Park, Wyoming 82190

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Figure 1: Tower-Roosevelt Project Area within Yellowstone National Park



Chapter 1: PURPOSE AND NEED

INTRODUCTION

In 2004, Yellowstone National Park staff and managers were repeatedly presented with individual projects by park staff, concessioners, and partners proposing to alter or upgrade visitor services, facilities, and utilities in the Tower-Roosevelt area (Figure 1). It became apparent that evaluating these projects individually, on a case-by-case basis, with separate environmental compliance actions was a time-consuming, repetitive process that could lead to unanticipated cumulative impacts to natural and cultural resources. Therefore, proposed projects were temporarily postponed until a more complete evaluation of the resources of the area could be conducted, desired conditions for resources and visitor experiences could be established, and a plan that guides change in development could be adopted.

Many of the facilities that support the existing range of visitor services within the Tower-Roosevelt area were built between fifty and ninety years ago. Since then, visitation has increased. Aged facilities sometimes require rehabilitation. Over the years, stop-gap measures such as single vault toilets and employee housing trailers may have out-lived their usefulness and become substandard. Finally, in 2001, the Canyon Junction to Tower Junction Road Improvement Environmental Assessment proposed the removal of the general store and safety-related improvements to the congested parking area at the Tower Fall Trailhead.

As facilities age and visitation patterns change, there is sometimes a need to alter or improve visitor services, facilities (i.e. buildings, roads, parking areas, trails, and overlooks), and utilities. Changes may include the addition, removal, replacement, or improvement of buildings, roads, parking areas, and utility systems. Although some types of NPS planning documents identify specific proposals showing exact designs and locations for these kinds of changes, these plans often become obsolete with the passage of time due to changing technology, unpredictable funding, and changing trends in visitor use and resource conditions.

For this reason, Yellowstone National Park has developed a comprehensive plan that preserves and protects natural, cultural, and visual resources, and visitor experience in the Tower-Roosevelt area by setting a benchmark for desired conditions for resources and visitor experience and defining boundaries, limits, and standards of where and how development and redevelopment can occur in order to achieve those desired conditions. Desired conditions for resources and visitor experiences are based

Fundamental resources and values are important systems, processes, features, visitor experiences, stories, scenes, sounds, or other resources and values that warrant primary consideration during planning because they contribute to the significance of the Tower-Roosevelt area, the park significance, and/or are critical to achieving the park's purpose. These are described on page 10.

Acceptable limits of change are guiding principles that define restrictions on what kind, where and how much development and redevelopment can occur in the Tower-Roosevelt area, without resulting in unacceptable impacts to natural, cultural, visual resources or visitor experience. They help achieve desired resource conditions and visitor experiences.

Desired Conditions for Resources and Visitor Experiences are benchmarks for natural, cultural, and visual resources and visitor experiences that are to be achieved while considering changes to the built environment in order to preserve the area's significance and fundamental resources and values.

on the Tower-Roosevelt area's significance and fundamental resources and values. The plan sets *acceptable limits of change* to development that supports and helps achieve these desired conditions. The comprehensive plan provides a framework for decision-making that NPS staff, managers, and partners would use when developing and evaluating project proposals for this area. The framework includes suitable locations, building sizes, appropriate functions, a list of possible projects, and design standards already assessed for resource compliance and determined to be within acceptable limits of change for the area. It is designed to provide a flexible, structured approach that allows park staff and managers to anticipate the impacts of different actions and then adjust decision-making depending on the impacts. Similar to the adaptive management approach conceptualized by Peterson et al (2003), comprehensive planning is meant to evaluate possibilities in an uncertain future, while providing guiding principles for managers to use for informed decision-making.

The Tower-Roosevelt Comprehensive Plan and Environmental Assessment (TRCP/EA) presents alternatives for this type of comprehensive plan. Two "action" alternatives are presented in the TRCP/EA, as well as a "no action" alternative. The two action alternatives utilize different levels of acceptable limits of change, which consist of three distinct components: buildable planning zones (where change can take place), planning prescriptions (primary functions and size restrictions for change), and design standards (characteristics of change) to guide project development and decision-making. The alternatives are described in Chapter 2, Alternatives Considered. The action alternatives differ in the locations and overall sizes of the buildable planning zones and also in the maximum development footprint size within these zones. As a result, they also differ in the possible future projects that are accommodated within those zones. Alternative A is the no action alternative, which would return the Tower-Roosevelt area to the process of considering proposed projects individually on a case-by-case basis rather than providing a comprehensive plan. Alternative B adopts a comprehensive plan with medium levels of change for the Tower-Roosevelt area while Alternative C adopts a comprehensive plan with low levels of change. Alternatives featuring a high level of change and no change were considered but rejected.

Because conditions on the ground may change, the resource assessments that provide information on a variety of natural and cultural resources in the Tower-Roosevelt area should be updated every ten years, or as needed.

The TRCP/EA evaluates the environmental impacts that could result from case-by-case project consideration, and impacts from implementing a final Tower-Roosevelt Comprehensive Plan. Future possible projects considered in this plan that fall within the scope of the buildable planning zones, planning prescriptions, and design standards would be regarded as within the acceptable limits of change and may be considered for the park approval process for construction within the Tower-Roosevelt area. Possible projects that

fall outside the scope of the buildable planning zones, planning prescriptions, or design standards are likely to exceed the environmental effects of the proposed alternatives, would be considered beyond the acceptable limits of change, and would be rejected. If future possible projects, not considered within this plan bring forth new information and demonstrate a compelling need for consideration, additional analysis that follows the National Environmental Policy Act would be required.

All projects that have the potential to affect wetlands, waters of the U.S., rare plants, and/or cultural resources must go through additional steps to comply with applicable laws and policies, even if they are within the scope of this plan. This is identified in the Project Evaluation Process.

BACKGROUND

Yellowstone National Park encompasses approximately 2.2 million acres (3,472 square miles) in the northwest corner of Wyoming and extends west into Idaho and north and west into Montana. Yellowstone was established by an Act of Congress on March 1, 1872. It is the core of the Greater Yellowstone Ecosystem (GYE), an approximately 18 million-acre area that includes Grand Teton National Park and John D. Rockefeller, Jr. Memorial National Parkway to the south, six national forests, three national wildlife refuges, Bureau of Land Management holdings, and additional tribal land, state land, towns, and private property. The GYE is one of the largest remaining intact temperate ecosystems in the lower 48 states.

The Tower-Roosevelt area is located in the northeast part of Yellowstone, 18 miles east of Mammoth Hot Springs (park headquarters) and includes the junction of the Grand Loop Road and the Northeast Entrance Road (Figure 1). It lies within an area known as the Northern Range, which covers over 500 square miles of critical wildlife habitat in the Lamar and Yellowstone river basins, overlapping the boundary between Wyoming and Montana. The Tower-Roosevelt area contains geologic features, varied wildlife habitat, and historic districts that contribute to the character of the area and provide opportunities for recreation, education, and conservation.

Thirty-five years ago, the Yellowstone National Park Master Plan (NPS 1974) stated that for the Tower-Roosevelt area:

Although the present flavor and character of this development is appropriate, the individual structures have outlived their usefulness and should be replaced. A "western camp" featuring rustic accommodations and family-style meals within acceptable ceilings should be considered. Although the facility will function as the focal point for traditional horse use within the park, only minimum stock

Fundamental Resources and Values of the Tower-Roosevelt Area

Developed as a stage stop in 1906, Tower-Roosevelt area's significance is based on: (1) the historic and rustic Roosevelt Lodge and associated cabins that preserve the small scale western camp setting and experience, and the historic and rustic Tower Junction Ranger Station that presides over Pleasant Valley; (2) traditional horseback trail rides, wagon rides, and a western cookout; (3) geologic features and processes that are revealed at the northern end of the Grand Canyon of the Yellowstone, including the 132-foot Tower Fall waterfall and spectacular basalt rock formations; and (4) the Northern Range; its diverse habitat, wildlife, scenic viewing opportunities, hiking, and fishing. The fundamental resources and values that support this significance are:

Roosevelt Lodge Historic District: *Roosevelt Lodge, a modest, rustic log structure, is tucked away at the forested edge of Pleasant Valley. The smallest of all Yellowstone's historic lodges, its front porch has been used for relaxing, informal education programs, and viewing of distant mountain ranges since 1919. Located on the site that was rumored to have been occupied once by President Theodore Roosevelt, it began as a western tent camp and stage stop in 1906. Small rustic cabins surround the lodge and are oriented around a meadow encircled by Douglas fir trees, quaking aspen, and the now dry channel of a once tumbling mountain stream. Unlike the lodges at Old Faithful, Lake, and Canyon, Roosevelt Lodge was not developed at a popular park feature. Instead, Camp Roosevelt was historically intended to be "something on the order of a dude ranch of the west," providing a remote place from which to enjoy the streams, trails, traditional horse use, and views of the Northern Range. It was listed on the National Register of Historic Places in 1983 as a historic district. It is nationally significant for its role in park guest accommodations, education, and rustic architecture.*

Tower Junction Ranger Station: *Formerly a soldier station, the U.S. Army moved this building to this site in 1907, where it presides prominently over the Tower-Roosevelt area. Modest and rustic, it overlooks Pleasant Valley. It currently serves as a NPS residence.*

The vast and diverse habitat of the Northern Range and its outstanding natural scenery: *Sweeping views of streams braiding through grassy meadows against a backdrop of forested slopes, rugged mountains, and rivers of the Northern Range are ecologically intact and virtually unmarred by human development.*

Wildlife: *Wildlife thrives within the diverse habitat of the Northern Range. Visitors have the opportunity to see wolves, grizzly and black bears, elk, pronghorn, bison, deer, bighorn sheep, and moose.*

Geologic wonders: *The 132-foot Tower Fall, Overhanging Cliff basalt rock formation, and Calcite Springs at the northern end of the dramatic Grand Canyon of the Yellowstone are easily accessed by visitors.*

Recreational activities: *Visitors have opportunities to experience the wilderness character of the Northern Range through sight-seeing, trail rides, wagon rides to a western-style cookout, fishing, cross-country skiing, and hiking.*

required for day-use riding will be accommodated on site. Special stock required for extended pack trips will be trucked in as needed.

Roosevelt will become the focal point for all horse concession base station operations. Expansion of this activity, to consist of backcountry pack trips of varying duration, will be encouraged. Unloading ramps and holding corrals at major trailheads, with additional horse trails to accommodate this use, should be studied and developed at an early date.

Today, most historic visitor uses and experiences continue to be relevant to park visitors. The most recent visitor-use survey conducted for Yellowstone National Park (University of Idaho 2006) provides information about visitor use patterns and preferences. The survey results indicated that several of the activities pursued by visitors in the Tower-Roosevelt area are important to them. In keeping with the quiet and secluded character of Tower-Roosevelt, of the seven developed areas of Yellowstone, it was the area in the park that was least visited. A majority of park visitors participated in sight-seeing, taking a scenic drive, and viewing wildlife and birds. Almost a third of respondents pursued trail rides, with a majority stating they enjoyed this activity. Almost a quarter of the respondents ranked scenic motorized tours as a popular activity and one-fifth participated in the western cookout at Yancey's Hole. Finally, when asked to list any services they would like to have available in park developed areas for a future visit, the top response was, "keep it natural with no further development."

Project Area

Most visitor service facilities in the northeast part of the park are centrally located within the Tower-Roosevelt area. For the purposes of the plan, the Tower-Roosevelt area has been divided into eight separate planning locations where the area's features and facilities are clustered: (1) Roosevelt Lodge, (2) Roosevelt Corrals, (3) Tower Ranger Station, (4) Tower Administrative Services, (5) Tower Junction, (6) Tower Fall Trailhead, (7) Tower Fall Campground, and (8) Yancey's Hole. Figure 2 shows the area features and planning locations. The alternatives in Chapter 2 are described by planning locations, with charts that outline the acceptable limits of change for each of the eight locations. The locations are:

Roosevelt Lodge: Early in the park's history, this area was identified as an overnight stop, attractive for its scenery and fishing streams. Established in 1906 as "Camp Roosevelt," visitors stay at the secluded and rustic Roosevelt Lodge with its small dining room, primitive cabins, and modest store in a setting that is very much as it was historically.

Roosevelt Corrals: An historic function adjacent to Roosevelt Lodge, the corral operation provides traditional horseback trail rides and horse-drawn wagon rides to the western style cookout at Yancey's Hole.

Tower Ranger Station: The historic Tower Ranger Station currently serves as an NPS residence, continuing to provide a ranger presence near the Roosevelt Lodge. Visitors may obtain backcountry permits and fishing licenses at a small backcountry office nearby.

Tower Administrative Services: Supporting the visitor facilities and resource protection in this portion of the park, the Tower Administrative location provides year-round maintenance, resource and visitor protection, emergency services, and additional NPS employee housing.

Tower Junction: At the junction of the Northeast Entrance Road and the Grand Loop Road is a paved area where visitors have access to a self-service fuel station, vault toilet, telephones, trash/recycling bins, as well as parking for the Garnet Hill Trail and for winter recreation such as cross-country skiing or snow-shoeing.

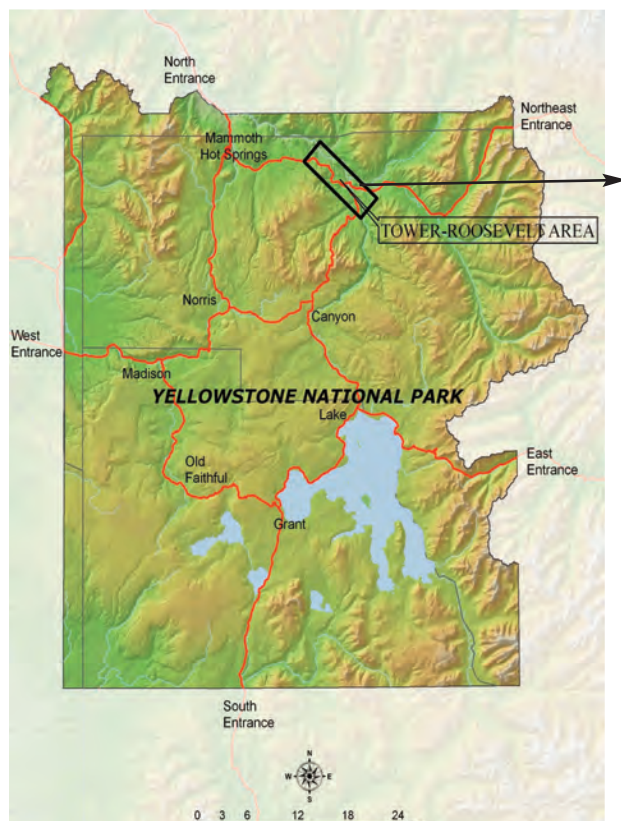
Tower Fall Trailhead: The short trail to Tower Fall overlook is a popular visitor attraction. At 132 feet, Tower Fall waterfall plunges toward the Yellowstone River. Both features can be seen from the Tower Fall Trail. At the trailhead there is parking for 68 cars and 5 oversized vehicles and the location includes a public restroom. Also at this trailhead parking area is a general store where visitors can enjoy lunch, ice cream and purchase retail items.

Tower Fall Campground: A 32-site campground across the Grand Loop Road from the trailhead provides camping during the summer season. An employee housing area is adjacent to the campground.

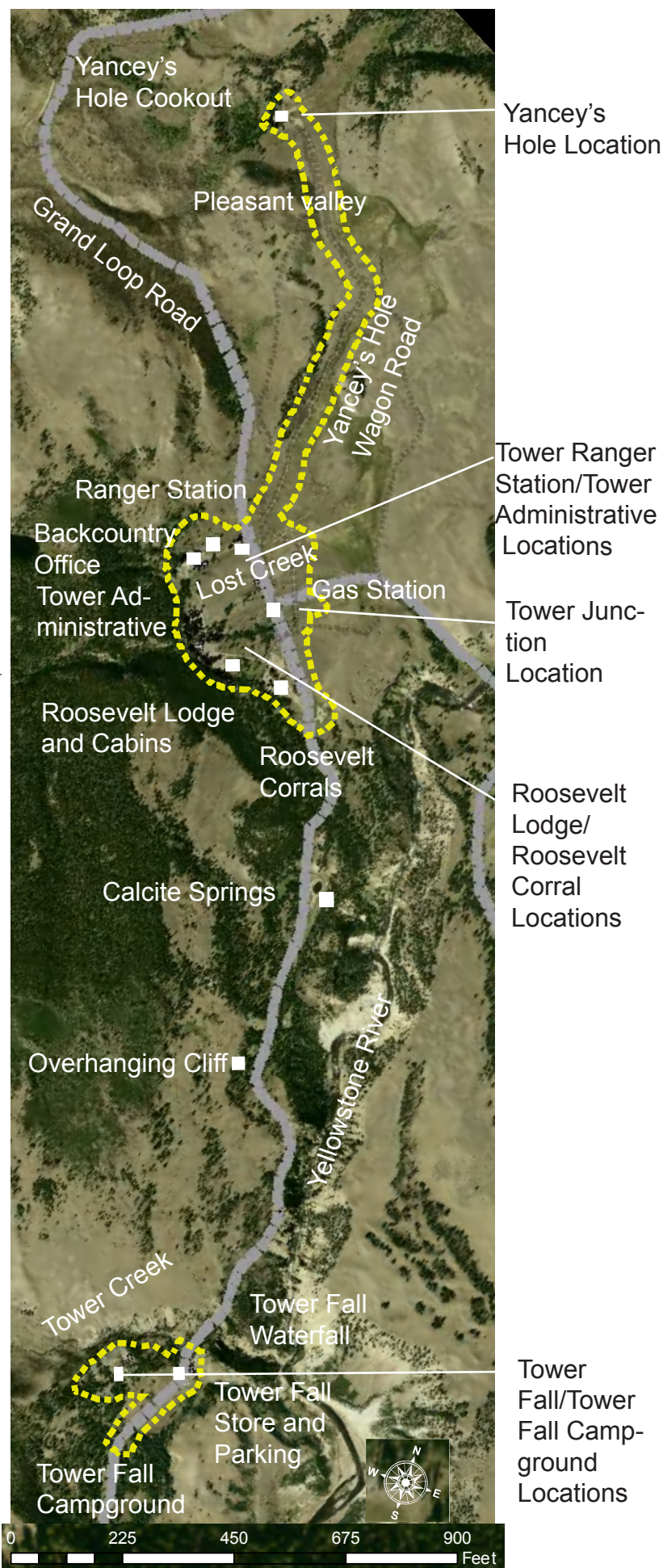
Yancey's Hole: The Yancey's Hole location is in the natural setting of Pleasant Valley where visitors arrive on horseback or in wagons for a western-style cookout every evening during the summer. It includes a dining shelter, picnic tables, vault toilets, and campfire circle. Wagons and horses are hitched near the cookout site, and food is served from a covered serving shelter.

Figure 2: Tower-Roosevelt Area Features and Locations

Located in the northeast portion of Yellowstone National Park, the Tower-Roosevelt area is known for the features indicated in white text on the aerial to the right. Planning locations are identified in the Tower-Roosevelt Comprehensive Plan/EA. They are shown in the text boxes adjacent to the aerial.



The yellow dashed line indicates the extent of the Planning Boundary.



PURPOSE AND NEED

The purpose of the TRCP/EA is to preserve natural, cultural, and visual resources and visitor experience in the Tower-Roosevelt area by using a comprehensive plan that would set desired future conditions for resources and visitor experience and guide changes in development and redevelopment. Tower-Roosevelt's secluded, rustic character, intimate scale, rich natural and cultural resources within the scenic and diverse habitat of the Northern Range, and existing range of visitor experiences and opportunities are to be preserved through comprehensive planning. The TRCP/EA is intended to guide decision-making through restrictions on how much, where, and what kind of development and redevelopment can occur in order to achieve desired conditions for resources and visitor experience without resulting in unacceptable impacts. Cumulative impacts are to be assessed on these for future development.

The Tower-Roosevelt area has, since its first development in 1884 at Yancey's Hole, undergone intermittent expansion and change. Today, the TRCP/EA is needed to address the following issues and concerns:

- **As facilities age and visitor use patterns change, there may be a need to alter, improve, or remove facilities and utilities.** Many facilities within the Tower-Roosevelt area were built between fifty and ninety years ago. Since then, visitation has increased and time has taken a toll on some facilities. Existing facilities such as restrooms, parking areas, and commercial services may require modification in order to meet visitor needs, mitigate health and safety concerns, and protect and preserve natural, cultural, and visual resources.
- **There is a lack of information regarding natural, cultural, and visual resources in the area.** Natural, cultural, and visual resources have not been surveyed and areas that are more sensitive or resilient to change have not been identified.
- **Desired resource conditions and desired visitor experiences need to be established in order to guide the future of the Tower-Roosevelt area.** Desired visitor use and desired natural, cultural, and visual resource conditions for the Tower-Roosevelt area have not been identified and established. They are needed to provide benchmarks for what the park wants to achieve in the area and provide sideboards for future changes and development. Desired conditions are derived from what is significant about the area and the fundamental resources and values supporting that significance. Future projects should strive to meet desired conditions.
- **There is a need to define what types of functions, uses, and facilities are necessary and appropriate to the Tower-Roosevelt area.** Identifying those functions that are appropriate and necessary to provide the desired experience and the range of visitor services and recreational and educational opportunities would inform project proponents of the park's goals for the Tower-Roosevelt area.
- **A methodology for determining parameters for cumulative actions and their cumulative impacts is necessary.** Although many individual proposed projects could be evaluated or carried out with site-by-site resource inventories and environmental compliance, cumulative impacts of many individual projects combined through time are difficult to anticipate. Collectively, these changes may incrementally and inadvertently alter the fundamental resources and values that make this area significant.
- **A consistent and timely process for evaluating and responding to project requests is necessary.** Individual evaluation of projects in 2004, using a case-by-case approach to project development and resource compliance, was found to be a time-consuming, repetitive, and

inefficient process. This is due in part to the lack of a comprehensive view of the area, dispersed information for natural and cultural resources, and lack of clear guidance for facility design. Additionally, the existing process for project review and approval is uncertain, can take extended lengths of time to complete, and is currently under revision.

Objectives

The objectives of the Tower-Roosevelt Comprehensive Plan are to:

1. Ensure that the desired conditions for natural, cultural, and visual resources and visitor experience are defined and achieved.
2. Preserve, protect, and improve park natural, cultural, and visual resources and visitor experiences and achieve desired conditions by guiding the location, function/type, size, and appearance of visitor services, facilities, and utilities.
3. Provide resource information in a single document to better assess possible cumulative impacts for proposed and future projects.
4. Use sustainable designs, methods, building practices, and technologies to the extent possible.
5. Identify opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions; reinvesting resources to improve the condition of the park's most important assets.
6. Guide decisions to provide high quality visitor services; concentrating efforts on core services at core locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.
7. Develop a consistent and timely process to formally evaluate project proposals based on acceptable limits of change defined in the TRCP/EA.

RELATED LAWS, REGULATIONS, AND POLICIES

The Yellowstone National Park Protection Act (1872) established the park and set forth its mission: "To set apart a certain tract of land lying near the headwaters of the Yellowstone River as a public park." The National Park Service Organic Act (1916) built upon that landmark law to form the National Park Service. Similarly, this TRCP/EA builds upon and is compatible with existing NPS management policies, which are guided by the public laws, treaties, proclamations, Executive orders, regulations, and Department of Interior directives. The major laws and policies with which this TRCP/EA must comply are described below.

NPS Guiding Laws, Regulations, and Policies

NPS Organic Act of 1916

Units of the national park system shall be managed "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner

and by such means as will leave them unimpaired for the enjoyment of future generations” (16 USC 1).

Redwood National Park Act of 1978, as Amended

This act states that the NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.”

National Parks Omnibus Management Act of 1998

This act directs the NPS to use a broad program of the highest-quality science and information in managing and protecting units of the national park system.

Code of Federal Regulations, Revised July 2000

Title 36, Chapter 1, provides regulations “for the proper use, management, government, and protection of persons, property, and natural and cultural resources within areas under the jurisdiction of the National Park Service.”

NPS Management Policies 2006

The alternatives proposed by this TRCP/EA and the assessment of their impacts are in part guided by NPS Management Policies 2006, which state that “The National Park Service will preserve the natural resources, processes, systems, and values of units in the national park system in an unimpaired condition, to perpetuate their inherent integrity and to provide present and future generations with the opportunity to enjoy them,” and “The National Park Service will protect, preserve, and foster appreciation of the cultural resources in its custody and demonstrate its respect for the peoples traditionally associated with these resources through appropriate programs of research, planning, and stewardship.”

Other Applicable Federal Laws, Executive Orders, and Regulations

Historic Sites Act of 1935

This act declares as national policy the preservation for public use of historic sites, buildings, objects, and properties of national significance. It authorizes the Secretary of the Interior and the NPS to restore, reconstruct, rehabilitate, preserve, and maintain historic or prehistoric sites, buildings, objects, and properties of national historical or archeological significance.

National Historic Preservation Act of 1966, as Amended

Section 106 of this act requires federal agencies to consider the effects of their undertakings on properties listed or potentially eligible for listing on the National Register of Historic Places. All actions affecting the park’s cultural resources must comply with this legislation.

National Environmental Policy Act of 1969, as Amended

This act is implemented through regulations of the Council on Environmental Quality (40 CFR 1500–1508). The NPS has adopted procedures to comply with this act and the CEQ regulations, as found in Director’s Order 12, Conservation Planning, Environmental Impact Analysis, and Decision-Making, and its accompanying handbook.

Endangered Species Act of 1973, as Amended

This act requires all federal agencies to consult with the Secretary of the Interior on any project or proposal that could impact federally endangered or threatened plants and animals.

Section 404 of the Clean Water Act of 1977 (33 U.S.C. 403)

The objective of this act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” NPS activities that involve the discharge of dredged or fill material into wetlands or other “waters of the United States” must comply with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act (regulations and permit process are described in 33 CFR 320-331).

NPS Director’s Order 77, 1991

This director’s order (DO) provides guidance to park managers on the design, implementation, and evaluation of a comprehensive natural resource management program.

Director’s Order 77-1, Wetland Protection, and the accompanying Procedural Manual 77-1, Wetland Protection (Reissued February 2008)

These documents establish NPS policies, requirements, and standards for implementing Executive Order 11990: Protection of Wetlands (421 CFR 26961I see below). Included in DO 77-1 is adoption of a “no net loss of wetlands” goal, which was first proclaimed in 1989 by President George W. Bush and has been sustained by subsequent administrations.

Director’s Order 77-2, Floodplain Management and the accompanying Procedural Manual 77-2, Floodplain Management

These documents establish NPS procedures for implementing floodplain protection and management actions in units of the national park system as required by Executive Order 22988, Floodplain Management (see below).

Executive Order 11990, Protection of Wetlands

This executive order (EO) directs the NPS to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid the direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

Executive Order 11988, Floodplain Management

This EO directs the NPS to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid the direct or indirect support of floodplain development wherever there is a practicable alternative.

Executive Order 11593, Protection and Enhancement of the Cultural Environment

This EO directs the NPS to support the preservation of cultural properties and to identify and nominate to the National Register cultural properties within the park and to “exercise caution . . . to assure that any NPS-owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered.”

THE PURPOSE OF YELLOWSTONE NATIONAL PARK

National park system units are established by Congress to fulfill specified purposes. A park's purpose is the fundamental building block for its decisions to conserve resources while providing for the "enjoyment of future generations." Statements of a park's significance describe why the park is important within a global, national, regional, and ecosystem-wide context and are directly linked to the purpose of the park.

Yellowstone's purpose and significance are rooted in the intent of its enabling legislation, subsequent legislation, and current knowledge of its natural, cultural, and visual resources. It is important to understand the significance of the Tower-Roosevelt area within the context of Yellowstone National Park's significance:

- It is the world's first national park.
- It preserves geologic wonders, including the world's most extraordinary collection of geysers and hot springs and the underlying volcanic activity that sustains them. Yellowstone is positioned on a "hot spot" where the earth's crust is unusually thin and molten magma rises relatively close to the surface.
- It preserves abundant and diverse wildlife in one of the largest remaining intact and wild ecosystems on earth, supporting spectacular biodiversity. Preserved as mostly wild and undeveloped, Yellowstone and the surrounding ecosystem serve as a benchmark for understanding nature.
- It preserves an 11,000 year old continuum of human history, including sites, structures and events that reflect our shared heritage. This history includes the birthplace of the national park idea—a milestone in conservation history.
- It provides for the benefit, enjoyment, education and inspiration of this and future generations. Visitors have a range of opportunities to experience the essence of Yellowstone's wonders and wildness in a way that honors the park's value to the human spirit and deepens the public's understanding and connection to it.

Congress established Yellowstone National Park to "dedicate and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people; ... for the preservation, from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition" (Yellowstone National Park Protection Act, 1872).

RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This TRCP/EA is consistent with other plans that have been completed to provide guidance for Yellowstone managers.

Yellowstone National Park Master Plan (1974)

The Record of Decision strives to balance human impacts and preservation of park natural, cultural, and visual resources by developing objectives for General Management, Resource Management, Visitor Use, and Interpretation. It provides recommendations for resource protection and development of facilities, accommodations, and support services that occur in individual developed areas.

Statement for Management (1991)

This statement for management described the existing conditions and management objectives for natural resources, adjacent lands coordination, visitor use, cultural resources, and park operations and planning.

YNP Community Housing Plan (1992)

The 1992 Community Plan for Tower Junction (Environmental Assessment for Employee Housing) addressed NPS and concessioner housing, NPS maintenance facilities, recreational facilities, ranger facilities, corrals, fire cache, visitor lodging, circulation, and utilities.

Roosevelt Lodge Historic Structures Report (1993)

In December 1993, James R. McDonald Architects prepared a historic structures report for Roosevelt Lodge and cabins. This report provides a history of development, an analysis and evaluation of contributing features, and a treatment plan.

YNP Long-Range Interpretive Plan (2000)

This YNP Long-Range Interpretive Plan provides visitor experience goals, primary interpretive themes and follows with recommendations. For the Tower-Roosevelt area this document recommends a winter warming hut/contact station and more outdoor exhibits.

Canyon Junction to Tower Junction Road Improvement Environmental Assessment (2001)

This project is one of many phases of road refurbishment identified in the Parkwide Road Improvement Plan (approved June 1993). It focuses on improvement of the entire Canyon Junction to Tower Junction road segment.

YNP Housing Management Plan (2005)

The 2005 Housing Management Plan is a report assessing the housing needs in each development in the park. It is based on an independent review of the park's housing program. It updated the 1992 Community Housing Plan with numbers and types of housing needed.

YNP Strategic Plan (2005)

This strategic plan reexamined the park's fundamental mission and took a fresh longer-range view, in concrete terms, of what results or outcomes are needed to more effectively and efficiently accomplish that mission.

Cultural Landscape Inventories for Roosevelt Lodge Historic District and Tower Junction Ranger Station Historic District (2007)

Prepared for the Roosevelt Lodge and Tower Junction Ranger Station historic districts by Shapins Associates, these documents are the basis for a recent determination of eligibility of cultural landscape features and patterns to be included in these districts. Determination of eligibility includes the realigning of district boundaries to include these features. The nomination to the National Register of Historic Places is a separate process that has not yet occurred.

Other Planning Documents

This TRCP/EA also references other planning documents and operating procedures for Yellowstone National Park including: Yellowstone Sign Standards (1992), Yellowstone Revegetation Guidelines (2002), and Yellowstone Lighting Guidelines (2004).

TOWER-ROOSEVELT COMPREHENSIVE PLANNING

The Comprehensive Planning Approach

Projects that address facility and utility needs in the Tower-Roosevelt area have the potential to impact natural, cultural, and visual resources. They can also affect visitor experience. For this reason, resources within the Tower-Roosevelt area were surveyed and mapped and desired conditions for resources and visitor experience were established. These desired conditions communicate what the park would like to achieve within the Tower-Roosevelt area. With the resource surveys, it also became possible to anticipate impacts and begin to define sideboards for change. These sideboards, or *acceptable limits of change*, define restrictions for where, how much, and what kind of development and redevelopment can occur within the existing developed area without resulting in unacceptable impacts to park natural, cultural, and visual resources and visitor experience.

The comprehensive planning approach process is described in the following sections. It is summarized in the process flow chart shown in Figure 3 below:

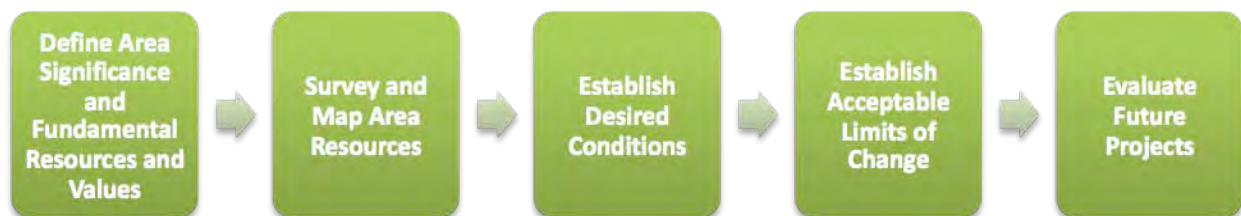


Figure 3: Tower Roosevelt Comprehensive Planning Process Flow Chart

Together with desired conditions for resources and visitor experience in the Tower-Roosevelt area, the acceptable limits of change can be used to (a) inform project proponents of what the park would like to

achieve in the Tower-Roosevelt area, (b) guide how future projects can be developed so that desired conditions are achieved, and (c) evaluate projects that fall within the acceptable limits of change. Any future projects selected from the list of possible projects that support desired conditions and are determined to be within the acceptable limits of change may be considered for the park approval process. Projects that do not meet desired conditions, are not on the list of possible projects, or are outside the acceptable limits of change would be rejected. In those exceptional cases where a rejected proposal may bring forth new information and demonstrate a compelling need for consideration, additional analysis that follows the National Environmental Policy Act would be required. All projects that have the potential to affect wetlands, waters of the U.S., rare plants, and/or cultural resources must go through additional steps to comply with applicable laws and policies, even if they within the scope of this plan.

Defining Area Significance and Fundamental Resources and Values

As Yellowstone National Park begins planning for the future of the Tower-Roosevelt area, a shared understanding of what resources and values warrant primary consideration is helpful in achieving the park's purpose. On page 17, the purpose and significance of Yellowstone National Park are described. They explain the specific reason the park was established and express why the park's natural, cultural, and visual resources and values are important enough to warrant national park designation. The significance statement for the

Tower-Roosevelt area (see box above) tiers off of the park significance statements and describes both visitor experience and natural, cultural, and visual resources and values that are important to preserve in this part of the park.

Fundamental resources and values are important natural, cultural, and visual features, systems, processes, visitor experiences, stories, scenes, sounds, or other resources and values that warrant primary consideration during planning because they contribute to the significance of the Tower-Roosevelt area, the park significance, and are critical to achieving the park's purpose. These are described on page 10.

Visitors traveling through the Tower-Roosevelt area *experience the diverse habitat of the Northern Range with sweeping views of wildlife in open meadows against the backdrop of rugged mountains. Visitors can access streams and trails, see unique geologic features, and view a dramatic waterfall. This is a quiet part of the park where one can visit the secluded historic Roosevelt Lodge, a modest, rustic western-camp with its horse and wagon rides.*

Significance Statement for the Tower-Roosevelt Area

Surveying and Mapping Area Natural, Cultural, and Visual Resources

In 2005, natural, cultural, and visual resources in the Tower-Roosevelt area were surveyed and mapped. The maps can be found in Appendix B. They include wetlands, rare plants, wildlife patterns, historic districts and cultural resource sites. These various resources are described in detail in Chapter 3, Affected Environment.

This resource information is used in three ways for the Tower-Roosevelt Comprehensive Plan: (1) it contributes to the knowledge of fundamental resources and values in the area, which then contributes to establishing desired resource conditions, (2) it gives geographic boundaries for resources that may require special compliance pathways, and (3) it gives specific information to defining the acceptable limits of change in development and redevelopment in certain locations.

These maps provide valuable information for all park staff, empowering them to actively protect resources. All project proponents would be required to use these maps and describe how they affect these resources in their project proposals (see Project Evaluation Form in Appendix A/B). All projects that have the potential to affect wetlands, waters of the U.S., and/or cultural resources must go through additional steps to comply with applicable laws and policies, even if they fall within the scope of this plan. There are some cultural resource sites that are not shown in this plan due to the sensitive nature of this information. This information would be revealed through the project evaluation process.

It is important that these maps maintain accuracy. Because resources are dynamic and conditions change over time, resource inventories within the Tower-Roosevelt area should be updated every ten years, or as needed.

Resources that may require additional compliance are avoided where possible. However, when avoidance is not possible, impacts must be mitigated according to law and policy. All projects that have the potential to affect wetlands, waters of the U.S., and/or cultural resources must go through additional steps to comply with applicable laws and policy, even if they fall within the scope of this plan.

Establishing Desired Resource Conditions and Desired Visitor Experiences

The desired conditions for Tower-Roosevelt are benchmarks for park natural, cultural, and visual resources and visitor experience that should be achieved while considering changes to the area, in order to preserve fundamental resources and values. The following four desired conditions are critical for planning within the Tower-Roosevelt area, and are common to the action alternatives presented in this plan:

Desired resource conditions and desired visitor experiences are benchmarks for natural, cultural, and visual resources and visitor experiences that should be achieved while considering changes to the built environment in order to preserve the area's significance and fundamental resources and values that are described in Chapter 1.

- 1. Natural resources that support the diverse habitat of the Northern Range and the geologic wonders at the northern end of the Grand Canyon of the Yellowstone are preserved and improved.**
 - The diverse wildlife habitat
 - The biodiversity sustained by native plant communities
 - Abundant wildlife
 - Geologic, hydrologic, and hydrothermal resources
- 2. Cultural resources and the features and patterns that contribute to their significance are preserved and improved.**

- The secluded, small scale, rustic Roosevelt Lodge and cabins, their clustering in distinct groups around a grassy meadow, and other contributing features within the Roosevelt Lodge Historic District
- The rustic Tower Ranger Station and its prominent setting over the Grand Loop Road and Pleasant Valley within the Tower Junction Ranger Station Historic District
- The contributing characteristics of the Tower-Roosevelt section of the Grand Loop Road Historic District
- Archeological resources

3. The existing range of visitor services and recreational and educational opportunities to experience the wilderness character of the Northern Range and the geologic features of the northern end of the Grand Canyon of the Yellowstone are preserved.

- The range of visitor opportunities including sightseeing, traditional horseback trail rides, wagon rides, western-style cookout, fishing, hiking, and cross-country skiing
- Wildlife viewing, including large mammals, in their natural setting
- Unique geologic and other natural features viewed from roads, overlooks and trails
- The wilderness-type setting of Yancey's Hole cookout site for visitors arriving by horse and wagon
- Services that support visitors in this area such as lodging, dining, retail services, and fuel service in modest, rustic, and historic accommodations
- The character, sights, and sounds of the natural and historic setting
- Education and interpretation of natural and cultural resources

4. The predominately natural scenery of the area is preserved and improved.

- Historic view sheds are preserved
- Views of structures and buildings are minimal
- The visual separation of developments by natural screening
- The blending of structures and buildings into the historic and natural setting so they are unobtrusive
- The screening of administrative areas from visitor views
- The historic view from the Roosevelt Lodge porch across the meadow to the distant mountains

Establishing Acceptable Limits of Change

While identifying desired conditions for resources and visitor experience provide benchmarks for what the park would like to achieve in the Tower-Roosevelt area, acceptable limits of change define how project proponents can achieve desired conditions. *Acceptable limits of change* are guiding principles that define restrictions on what kind, where and how much development and redevelopment can occur in the Tower-Roosevelt area without resulting in unacceptable impacts to natural, cultural, and visual resources, and visitor experience. The three planning components of acceptable limits of change, when used together with the desired conditions for resources and visitor experience, provide a framework for decision-making that NPS staff, managers, and partners would use when developing and evaluating project proposals for this area. Acceptable limits of change are established through the use of three distinct components taken in combination—buildable planning zones, planning prescriptions, and design standards—that have been assessed already for environmental impacts (though the project approval process may required additional compliance for wetlands, waters of the U.S., and/or cultural resources). Figure 4 illustrates acceptable limits of change and the three planning components.

Component 1: Buildable Planning Zones

Delineated on the maps, buildable planning zones show *where* change can take place without unacceptable impacts to natural, cultural, and visual resources. Five types of land-use classifications are defined within the developed areas as buildable planning zones. They provide guidance for balancing the level of resource preservation and protection with visitor experience that will be emphasized while considering changes to visitor services, facilities, and utilities. They are based on and are to be used in conjunction with mapped resource inventories (see Appendix B).

Buildable planning zones show only those portions of an area that are suitable for change. They show where change can occur by dividing the project area into five types of land-use classifications.

Buildable planning zones are the first cut at identifying acceptable limits of change through the delineation of areas that are more suitable for development. The locations, types, and sizes of buildable planning zones are different for each action alternative. Color-coded in Figures 6a through 13a, the five different buildable zones are: (1) Natural, (2) Historic, (3) Circulation, (4) Development, and (5) Administrative. Figure 4 describes these zones, showing how they are depicted on the maps for Alternatives B and C.

- **Buildable Natural** zones are adjacent to or surrounding developed areas or roads where emphasis is placed on preserving predominantly natural scenery and/or historic views. Underground utilities, trails, and boardwalks that do not obstruct views or scenery may be accommodated in this zone. This zone covers most of the area within the planning boundary. Since it is so pervasive, there would be restrictions on impacts allowed within this zone. The plan proposes that all projects within the Buildable Natural Zone remain at a resource impact threshold equal to or less than a “minor adverse impact,” as defined under each impact topic in Chapter 4. Resources that may require additional compliance would be avoided where possible. If avoidance is not possible, impacts must be mitigated according to law and policy. All projects that have the potential to affect wetlands, waters of the U.S., and/or cultural resources must go through additional steps to comply with applicable laws and policies.
- **Buildable Historic** zones are areas within existing historic districts where development changes can occur, provided they follow the Secretary of the Interior Standards for the Treatment of Historic Properties under Section 106 of the National Historic Preservation Act. It is important to note that not all of a historic district is zoned as “buildable.” In order to preserve those historic building and circulation patterns that contribute to the integrity of the district, some portions of a historic district are not zoned as Buildable Historic. These include important viewsheds, existing building cluster arrangements, and certain natural features such as meadows. Development and redevelopment of buildings, roads, parking areas, and trails can occur where zoned, in certain sections of the historic district in a way that maintains historic integrity. Emphasis is placed on guiding limited changes and improvements while preserving the historic integrity of buildings, structures, roads, parking areas, trails, and other landscape features and patterns.
- **Buildable Circulation** zones are roads within the Tower-Roosevelt area where changes to that road may occur. In some cases, these roads may be part of a historic district. Emphasis is placed on preserving historic character, or providing a park-like driving experience for the visitor.

Certain zones are more suited for future development and redevelopment than other zones because they mostly avoid sensitive natural or cultural resources and are not within historic districts. Most possible projects within the TRCP/EA would occur within the following zones:

- **Buildable Development** zones are areas where development mostly associated with visitor services can occur, such as buildings, roads, parking, and trails. Emphasis is placed on providing or improving facilities and utilities in a way that complements the natural setting.
- **Buildable Administrative** zones are areas that are typically not viewed or visited by the public, are functional, and are not intended as part of the visitor experience. Emphasis is placed on providing appropriate support facilities such as buildings, parking, storage, etc., while screening these areas from visitor views and access.

Using Resource Maps in the TRCP/EA: Maps showing the location of natural, cultural, and visual resources are shown in Appendix B. Descriptions of the resources contained in these maps are found in Chapter 3. These resource maps can be compared to the zoning maps found Alternatives B and C in Chapter 2. Impacts resulting from situations where certain zones overlap natural and cultural resources are discussed in Chapter 4. In some cases, buildable zones overlie resources that may require additional compliance. In these cases, impacts must be mitigated according to applicable law and policy. All projects that have the potential to affect wetlands, waters of the U.S., and/or cultural resources must go through additional steps to comply with applicable laws and policies.

Component 2: Planning Prescriptions

Planning prescriptions further define the acceptable limits of change that may occur within a particular zone by identifying primary function (what kind) and development footprint (how much) changes that can take place to the built environment without unacceptable impacts to natural, cultural, and visual resources. They are shown in Figure 6b through 13b for each alternative at each of the eight locations within the Tower-Roosevelt area.

The built environment refers to human made physical structures, facilities, and utilities that make up a community.

Each location has its own set of planning prescriptions (by alternative) that are based on (a) existing functions, (b) available space for new development, and (c) desired conditions for visitor experience and resources. Planning prescriptions vary between the two action alternatives based on acceptable levels of change; the prescriptions allow for more change in Alternative B than in Alternative C.

Primary Functions: Different types of facilities have different potentials to impact natural, cultural, and visual resources and visitor experience. For example, maintenance functions may conflict with and compromise visitor experience if placed near visitor-use areas. Parking for employee housing may compete with visitor parking. Establishing functions also helps to achieve desired conditions for visitor experience. For example, confirmation of functions related to traditional visitor horse-use in the Roosevelt Corrals location supports the desired condition of preserving horseback trail rides, wagon rides, and the western-style cookout.

Maximum Change in Development Footprint: Sometimes known as the “built environment,” development footprint is the square footage of buildings (at ground level), roads and paved parking in the developed portions of the Tower-Roosevelt area. There would be no net gain in development footprint for unpaved parking, although redesign may occur. The *maximum change in development footprint* reflects how much net change to the square footage of buildings, roads, and paved parking may be made while still achieving desired conditions for resources and visitor experience. These changes can contribute towards net-gains or net-reductions to the built environment, depending on the alternative. Both action alternatives yield net-gains in development footprint.

It is important to note that if existing buildings, roads, and paved parking are removed, they can be replaced by similar-sized facilities at no net-gain in development footprint, as long as they fall within the other components for acceptable limits of change. For example, the parking in front of the Roosevelt Lodge can be redesigned to improve the views from the front porch without a net-gain in development footprint. Employee housing at the Tower Administrative location can replace similar-sized trailer housing at no net-gain in development footprint. This helps the park to reduce a development footprint that does not support objective #5 of this plan—reinvesting in the park’s most important assets (page 14). Changes that have the potential to affect historic properties would require compliance with Section 106 of the National Historic Preservation Act.

Examples of Existing Single-Building Footprints

Roosevelt Lodge (front):	2,000 s.f.
Roosevelt Lodge Cabins:	250-350 S.f.
Roosevelt Lodge Bathhouses:	550-950 s.f.
Corral Hay Barn:	2,000 s.f.
Yancey’s Hole Dining Shelter:	1800 s.f.
Tower 4-plex residence:	3500 s.f.
Tower Ranger Station:	2400 s.f.
Gas Station:	1300 s,f, interior; 1786 s.f. pumps
Tower Fall General Store:	8,253 s.f.

For each action alternative, a development footprint is suggested within the five buildable zones as a net-gain or net-reduction in the current built environment. In general, Alternative B allows for greater changes in development footprint than Alternative C.

Existing Total Development Footprint

	<i>Buildings</i>	<i>Paved Parking</i>	<i>Unpaved Parking</i>
Roosevelt Lodge Location	62,967 s.f.	31,392 s.f.	10,484 s.f.
Roosevelt Corral Location	6,671 s.f.		42,679 s.f.
Tower Ranger Station Location	3,878 s.f.	12,362 s.f.	
Tower Administrative Location	17,322 s.f.	88,339 s.f. (both)	
Tower Junction Location	3,391 s.f.	32,301 s.f.	
Tower Fall Trailhead Location	10,000 s.f. (approx)	43, 401 s.f.	
Tower Fall Campground Location	8,044 s.f.	22,876 s.f.	
Yancey’s Hole Location	2,732 s.f.		

Methodology for Determining Possible Projects and Development Footprint

Possible projects and associated development footprints used in the planning components of acceptable limits of change for each action alternative propose options to achieve desired conditions for visitor experience in the Tower-Roosevelt Area. They provide a means to develop acceptable limits of change and measure their potential environmental impacts. They were determined by utilizing staff input and resource surveys in order to achieve the following guiding principles:

- a) Meet the purpose and objectives of the TRCP/EA (Chapter 1).
- b) Achieve desired conditions for natural, cultural and visual resources and visitor experience (Chapter 1).
- c) Prevent unacceptable impacts to resources through the utilization of recent resource surveys that are described in Chapter 3.
- d) When impacts are unavoidable, disclose these impacts and mitigation measures in Chapter 4.

Staff Input: During the comprehensive planning process, park staff and partners were asked to identify visitor use and operational needs that could help achieve solutions for meeting the desired conditions that address visitor experience at Tower-Roosevelt (Chapter 1). These needs were examined as “possible projects” to propose a range of development footprints. See Table 3 for a list of all possible projects. They are used in the TRCP/EA for purposes of analyzing how such projects may affect the built and natural environments and are proposed under this plan.

Resource Surveys: Under Design Guidelines, maximum single building footprints were established as a way to meet the desired conditions for preserving natural resources, cultural resources, and the natural scenery. Some resource surveys revealed resources that may require additional compliance that restricted the extent to which the development footprint could expand. Resource surveys, such as a viewshed analysis and historic district evaluations provided size restrictions that preserved contributing features and patterns.

The action alternatives present a range of possible projects and a range of development footprints within a buildable planning zone and are assessed in Chapter 4, Environmental Consequences.

Component 3: Design Standards

Design standards have been developed as the third planning component to ensure the character of facilities is compatible and harmonious with specific locations within the Tower-Roosevelt area. These standards specify acceptable facility design, character, size, and appearance.

Some design standards in some locations are less flexible than others. For example, there is greater flexibility in facility design in *Buildable Administrative Zones* than in the *Buildable Historic Zones* because these areas would not be seen or accessed by the public. Design standards would not be the same for every *Buildable Historic Zone* because different historic districts reflect different historic significance, periods of history, and features. For example, the Roosevelt Lodge Historic District is significant for its role in the evolution of guest accommodations, as a western camp, between 1906–1948, while the Tower Junction Ranger Station Historic District is significant for its role in the development of park administrative facilities, as a soldier/ranger station, between 1907–1945. New facilities or changes within these districts would require different characteristics in order to be compatible and not have an adverse effect. Design standards are meant to capture these differences.

Figure 4: Acceptable Limits of Change: Planning Components

Acceptable limits of change consist of three components: planning zones, planning prescriptions, and design standards. Taken together with desired conditions, acceptable limits of change guide future development at Tower-Roosevelt.

1 **Buildable Planning Zones:** Zones show where changes in development can take place without unacceptable impacts. The Plan/EA uses five types of buildable land-use classifications to determine the type of resource protection and visitor experience to be applied to visitor services, facilities and utilities. The zones and their application are illustrated in this section. Refer to Chapter 1 for more detail.



Buildable Natural Zones
are adjacent to, or surrounding developed areas or roads where underground utilities, boardwalks or trails may occur. Emphasis is placed on preserving predominantly natural scenery, cultural resources, and/or historic views.



Buildable Circulation Zones are paved roads that are part of the developed area where changes may occur. Emphasis is placed on historic character and providing a parklike driving experience for visitors.



Buildable Historic Zones are areas within or adjacent to existing historic districts where changes in development may occur. Emphasis is placed on guiding limited changes and improvements while preserving historic integrity.



Buildable Development Zones are areas where recent development has already occurred and future building can occur. Emphasis is placed on providing or improving facilities in a way that complements the existing setting.

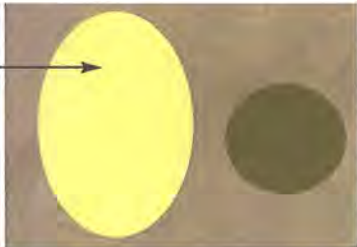


Buildable Administrative Zones are areas that are typically not viewed or accessed by visitors, are functional, and are not intended as part of the visitor experience. Emphasis is placed on support facilities for visitor use.

Buildable planning zones may be applied to locations differently in alternatives in the EA. In one alternative, the same buildable planning zone may be larger or of a different type than in another alternative.

Example:

The Buildable Administrative Planning Zone is larger than the Buildable Historic Planning Zone. The Buildable Natural Planning Zone surrounds both.



2 **Planning Prescriptions:**

Planning prescriptions identify the primary function (visitor services, housing, etc.) of development footprint (square footage of buildings, roads and pavement) that can take place within a particular planning zone.

Example:

Zone	Primary Function	Maximum Development Footprint
Buildable Administrative Zone	<ul style="list-style-type: none">NPS administrative and operational facilities related to visitor support.	Not to exceed 7,000 s.f. net gain for buildings*
Buildable Historic Zone	<ul style="list-style-type: none">Concession visitor facilities related to lodging and dining.	Not to exceed 1,200 s.f. net gain for buildings*

***NOTE:** This Plan/EA provides for reduction, replacement and new Development Footprint. Additionally, Design Guidelines provide guidance for the size of an individual building within a location in both Alternatives A and B.

Changes to historic properties require compliance with Section 106 of the National Historic Preservation Act (NHPA.) Impacts to floodplains, wetlands and other waters of the U.S. require compliance with the Clean Water Act and DO-77-1 and DO-77-2.

3 **Design Standards:**

Design standards are the specific design restrictions that would be applied to facilities and infrastructure constructed within the planning zones. The design standards are defined by both the type of planning zone and the location within the Tower-Roosevelt area. They are the same for both alternative B and C.

Example:

Buildable Administrative Zone	Materials	Materials reflect sustainable design, blend with surrounding structures in overall appearance and avoid reflective finishes. Use sustainable design methods, materials and technology where possible.
	Color	Blends with natural environment and adjacent buildings. Use durable finishes such as dark brown stain.
	Scale, size	Buildings do not exceed 3,500 s.f., 2 stories (height and mass of existing 4-plex.)
	Roof design	Design, pitch and composition similar to adjacent buildings; appropriate for snow loads.
Buildable Historic Zone	Layout	Area visually and functionally separated from the visitor services areas. Signs, night lighting, and vegetation follow existing approved park guidelines.
	Setting	Buildings orient to each other within a cluster and away from creek.
	Materials	Wood-framed, board and batten building exteriors, log and native stone details.
	Color	Utilize historically appropriate colors.
	Scale, size	Buildings do not exceed 1,200 s.f., 1 ½ stories (similar to size of historic structures in the complex.)
	Roof design	Design, pitch and composition similar to historic buildings.
	Layout	Reflects historic design and organizational pattern.
	Setting	Historic vegetation patterns retained.

Design standards address mitigation measures for impacts to natural and cultural resources. They specify materials, color, scale, size, roof designs, layouts and settings that preserve the modest, secluded, small-scale, rustic character and historic integrity of the Tower-Roosevelt area. They follow the Secretary of the Interior Standards for the Treatment of Historic Properties, and also achieve the desired conditions for visual resources and natural scenery. Unlike buildable planning zones and planning prescriptions, design standards do not differ between the action alternatives; they consistently address desired conditions for historic and scenic resources regardless of the proposed level of change.

They are the last of the three components for defining Acceptable Limits of Change to development and redevelopment. Design standards for each location can be found on Figures 6b through 13b.

Evaluating Future Projects

Once the Tower-Roosevelt Comprehensive Plan is adopted, park staff, managers, and partners would be made aware of desired conditions for resources and visitor experience the park would like to achieve in this area. They would follow the guiding principles of acceptable limits of change to guide, design, evaluate, and meet the requirements of regulation and policies for resource protection as they develop their project proposals. Project proposals would be more likely to support desired conditions for resources and visitor experience of the Tower-Roosevelt area.

Project Approval Process: A draft Project Application Form would be used by park staff to evaluate project proposals (Appendix A). A project proponent would first consult the established desired conditions for resources and visitor experience as well as the three planning components. Subsequently, resource survey maps would need to be checked for all resources that may be affected by their project (Appendix B). Projects may be implemented with the approval of the superintendent if they fall within the scope of the acceptable limits of change and are contained on the list of possible projects proposed by this plan. If there are impacts that fall within the scope of the plan, applicable mitigation measures would be followed.

Projects that fall outside the scope of the buildable planning zones, planning prescriptions, or design standards, and/or are not on the list of possible projects are likely to exceed the environmental effects of the proposed alternatives, would be considered beyond the acceptable limits of change, and would be rejected. In exceptional cases, a rejected proposal may bring forth new information and demonstrate a compelling need for consideration. In such cases, additional analysis that follows the National Environmental Policy Act would be required.

Continued Responsibility for Resource Protection Beyond the TRCP/EA

Responsibility for resource protection does not end once a project is selected. After a project is determined to be within the acceptable limits of change, good project design and continued environmental compliance would ensure the desired resource conditions of the Tower-Roosevelt area are achieved.

For example, in the Buildable Natural Zones, exact locations and development footprints for underground utilities were not shown because their designs are dependent on projects selected in the future. Since this zone is so pervasive (it covers most of the area within the planning boundary), there would be higher restrictions on impacts allowed for individual projects within this zone. The plan suggests that all projects within the Buildable Natural Zone remain at a resource impact threshold equal to or less than a "minor

adverse impact,” as defined under each impact topic in Chapter 4. These projects would be documented through the Yellowstone Environmental Compliance Process.

Additional Environmental Compliance: Yellowstone National Park is responsible for meeting applicable environmental compliance processes that are required by law and policy after a project is proposed and designed, even if it falls within the limits of acceptable change for the TRCP/EA. For example, Section 106 of the National Historic Preservation Act requires consultation regarding changes to cultural resources. Designs, materials, and placement of changes within historic districts require adherence with the Secretary of the Interior Standards for the Treatment of Historic Properties to ensure the integrity of the historic district is not diminished. All projects that have the potential to affect wetlands, waters of the U.S., and/or cultural resources must go through additional steps to comply with applicable laws and policies, even if they fall within the scope of this plan. Project proponents must follow the established Yellowstone Environmental Compliance Process which is included at the end of the project approval form.

Changes to wetlands still require compliance with Sections 404 and 401 of the Clean Water Act and Director’s Order 77-1, Wetland Protection. Changes to floodplains require compliance with Director’s Order 77-2, Floodplain Management. Changes to rare plants require compliance with the NPS Management Policies 2006.

Although the acceptable limits of change adhere to historic preservation principles and follow the Secretary of the Interior Standards for the Treatment of Historic Properties, this plan only partially fulfills the requirements of Section 106 of the National Historic Preservation Act. All projects that have the potential to affect cultural resources or are within or adjacent to cultural resources still require cultural resources compliance and consultation, as necessary

Sustainability and Good Design: Environmentally-friendly, universally accessible designs would achieve conservation stewardship and high-quality visitor services. Environmentally sustainable building practices and designs would mitigate resource impacts to Tower-Roosevelt area resources, as well as resources within a larger geographic context. For example, hard surfaces that restrict infiltration of precipitation can be mitigated through good design options such as minimizing paved surfaces.

Rather than continually adding to the development footprint accommodated within the TRCP, replacement of buildings, paved parking, and utilities is more sustainable. This allows for future opportunities to reduce buildings, roads, and utility systems and other facilities that do not support the desired conditions for resources and visitor experience of the Tower-Roosevelt area. It allows the reinvesting of park staff time and money into improving the condition of the park’s most important assets. It also allows the park to concentrate efforts on core services at core locations during peak visitation periods while maintaining essential services.

APPROPRIATE USE

Section 1.5 of NPS Management Policies 2006, *Appropriate Use of the Parks*, directs that the NPS must ensure that allowed park uses would not cause impairment of, or unacceptable impacts on, park resources and values. Section 8.1.2, *Process for Determining Appropriate Uses*, provides evaluation factors for determining whether a use is appropriate. Any proposed park use must be evaluated for:

- consistency with applicable laws, executive orders, regulations, and policies;
- consistency with existing plans for public use and resource management;
- actual and potential effects on park resources and values;

- total costs to the NPS; and
- a determination of whether the public interest would be served.

Park managers must continually monitor all park uses to prevent unacceptable impacts. If an unacceptable impact occurs, the park manager must engage in a thoughtful, deliberate process to manage, constrain, or discontinue the use in a way that will prevent or minimize the impact. Use of an appropriate location, sizing, as well as construction materials and methods can help ensure that unacceptable impacts on park resources and values do not occur as a result of development.

Possible projects listed in Table 3 suggest options for achieving desired conditions for visitor experience in the Tower-Roosevelt area. They are intended to provide a means to develop acceptable limits of change and measure their environmental impacts. The possible projects have been evaluated as appropriate uses within the plan as they meet requirements for necessary and appropriate visitor services or support facilities for visitor services. In most cases, the uses reflect the improvement or replacement of aging facilities that already exist in the area. They include: a commercial services building (existing use in new location), a new visitor contact station, additional public restrooms/vault toilets, remodel of the existing service station, improvement/replacement of the existing backcountry office, additional guest cabins at the Roosevelt Lodge, replacement saddle/hay barns, new shade shelter, additional employee restroom/shower house, replacement employee housing, new emergency services building, existing dining shelter and serving shelter rehabilitation, existing general store remodel, and additional paved parking associated with these projects. New uses proposed for the Tower-Roosevelt area include the visitor contact station, the emergency services building, and shade shelter. Whether they are either existing or proposed uses, they are all common and vital facilities within most park units, and either directly or indirectly support the visitors who visit this portion of the park. They are consistent with applicable laws, executive orders, regulations, and policies. They are consistent with the 1974 Yellowstone National Park Master Plan, and address the proposals of the 2001 Canyon-Junction to Tower-Junction Road Improvement Environmental Assessment, which called for the removal of the Tower Fall General Store from its current location. They are also consistent with the YNP Long-Range Interpretive Plan (2000), the park's Core Operations Plan (2008) and current concessioner contracts. The planning components guide the location, size, appearance, and overall development footprint of these possible projects so that no unacceptable impacts will result. The impact analysis in chapter 4 shows that actual and potential impacts on park resources and values are no higher than a moderate adverse impact. These projects are consistent with the desired conditions for resources and visitor experience within the Tower-Roosevelt area. With this in mind, the NPS finds that these possible projects represent uses that are appropriate and acceptable within Yellowstone National Park.

PUBLIC SCOPING

Scoping is a process used to determine the breadth of issues and alternatives to be addressed in an environmental assessment. For this TRCP/EA, Yellowstone staff conducted scoping with the public and interested and affected organizations and agencies, including meetings with the associated tribes of Yellowstone National Park. NPS staff members were also consulted as the plan/EA was developed. Scoping helped to refine the TRCP/EA's purpose and need, and determine likely issues, concerns, and resource impact topics (i.e., resources that could be impacted by the implementation of a given course of action or alternative).

Public scoping for the Tower-Roosevelt Comprehensive Plan/EA began on May 26, 2006, with a news release and mailing to interested parties asking for participation in identifying issues and concerns. Scoping

was also done through the NPS Planning, Environment, and Public Comment (PEPC) website. Scoping ended on June 30, 2006. Six comments were received through PEPC. One comment was received through the U.S. Postal Service from the Comanche Tribe requesting project progress updates.

Comments were in support of developing a comprehensive approach to projects in the Tower-Roosevelt area. Further, those who commented recommended keeping the western, rustic, small scale historic elements.

IMPACT TOPICS

Topics Retained for Further Analysis

Impacts topics for this plan were identified on the basis of: (1) federal laws, regulations, and orders; (2) NPS Management Policies 2006; (3) NPS staff knowledge of natural, cultural, and visual resources at Yellowstone National Park; and (4) comments received during public scoping. The impact topics that received further analysis in this EA and the rationale for consideration are listed below. For each of these topics, the existing setting or baseline conditions within the affected project area are described in Chapter 3, Affected Environment. This information was used to analyze impacts on the current conditions of the project area in Chapter 4, Environmental Consequences, which provides analysis for direct, indirect, and cumulative impacts for each of the three alternatives.

Natural Resources

Note: terminology is defined in Chapter 3, Affected Environment.

Geological, Paleontological, and Soils Resources

The NPS strives to preserve and protect geologic, paleontological and soils resources as integral components of the park's natural systems by (1) assessing the impacts of natural processes and human activities to these resources; (2) maintaining and restoring their integrity; (3) integrating resource management into NPS operations and planning; and (4) interpreting these resources for park visitors. As used here, the term "geologic resources" includes both geologic and hydrothermal features and processes (NPS Management Policies 2006).

Geologic, paleontological and soils resources have been retained as an impact topic because there could be long term or short term impacts. The Tower Fall location is a significant feature in the Tower-Roosevelt area with development on old lake sediments. These old lake sediments are impermeable and can be unstable. High concentrations of toxic gases have been measured at the base of Tower Fall. The Yancey's Hole location contains important paleontological resources. (Geologic Concerns at Roosevelt, Tower Fall and the Lamar River Bridge, Cheryl Jaworowski and Hank Heasler, 2006)

The NPS strives to understand and preserve the soil resource of park units and to prevent, to the greatest extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources (NPS Management Policies 2006).

Soils have been retained as an impact topic because development at in the Tower-Roosevelt area could require excavation of soils into the hillside with exposed cut slopes and placement of fills soils. The extent of excavation would depend on the alternative adopted and the design of possible projects in the Tower-Roosevelt area.

Floodplains and Wetlands

Executive Order 11988, Floodplain Management, requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. NPS Management Policies 2006 and Director's Order 77-2, Floodplain Management, require national parks to preserve floodplain values and minimize hazardous floodplain conditions. DO 77-2 also specifies that certain construction within the 100-year floodplain requires preparation of a Statement of Findings for floodplains.

Executive Order 11990, Protection of Wetlands, requires federal agencies to avoid, where possible, impacting wetlands. For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Further, Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge or dredged or fill material or excavation within waters of the United States. NPS Management Policies 2006 and Director's Order 77-1, Wetlands Protection, require parks to prevent the loss or degradation of wetlands and to preserve and enhance their natural and beneficial values. DO 77-1 also requires proposed actions that could adversely impact wetlands to be addressed in a Statement of Findings for wetlands.

Floodplains and wetlands have been retained as an impact topic because although the action alternatives purposely guide projects to avoid these resources, there are concerns that development may still affect these resources. One area may be susceptible to precipitation events even although it is not in the 100-year floodplain. (Floodplain Analysis Results for the Tower Junction Developed Area, Michael Martin, 2006)

Vegetation and Rare Plants

The NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants; to restore native plant communities where necessary, and to minimize human impacts on native plants and the processes that sustain them (NPS Management Policies 2006).

Vegetation and rare plants have been retained as an impact topic because possible projects in each alternative in the Tower Roosevelt area could impact vegetation. Although rare plants would be avoided, vegetation restoration is addressed in the mitigation measures.

Wildlife

The NPS strives to maintain components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals (NPS Management Policies 2006).

Wildlife has been retained as an impact topic because possible projects in each alternative, especially at Tower Junction, potentially result in disturbance from human activity, and changes in habitat and ungulate migration patterns.

Threatened and Endangered Species

The Endangered Species Act (1973) requires federal agencies to conserve listed species and habitats critical to their survival. NPS policy requires examination of the impacts on candidates for federal listing, as well as species that are state-listed or candidates for state listing as threatened, endangered, rare, declining, or sensitive species.

Threatened and Endangered Species have been retained as an impact topic because the Canada lynx and gray wolf are listed species and implementation of the alternatives potentially result in disturbance effects from human activity and change in habitat in the Tower-Roosevelt area.

Natural Soundscapes

According to NPS Management Policies 2006, "Park natural soundscapes encompass all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. The NPS will preserve, to the greatest extent possible, the natural soundscapes of parks." The NPS strives to restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds and to protect natural soundscapes from unacceptable impacts.

Soundscapes have been retained as an impact topic because human caused sounds would likely increase temporarily during construction. Long term human sounds could increase at the Tower Junction Location and decrease at the Tower Fall Trailhead Location depending on the alternative adopted.

Cultural Resources

According to NPS Management Policies 2006, "The National Park Service will protect, preserve, and foster appreciation of the cultural resources in its custody and demonstrate its respect for the people traditionally associated with those resources through appropriate programs of research, planning, and stewardship."

Section 106 of the National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.), Director's Order 28, Cultural Resource Management Guideline, and National Park Service Management Policies 2006 require the consideration of impacts on historic properties that are listed on or eligible to be listed in the National Register of Historic Places (NHRP). The Register is the nation's inventory of historic places and the national repository of documentation for property types and their significance. The above-mentioned policies and regulations require federal agencies to coordinate consultation with State Historic Preservation Officers regarding the potential effects to properties listed on or eligible for the NHRP.

The National Park Service, as steward of many of America's most important cultural resources, is charged to preserve historic properties for the enjoyment of present and future generations. Management decisions and activities throughout the national park system must reflect awareness of the irreplaceable nature of these resources. The National Park Service will protect and manage cultural resources in its custody through effective research, planning, and stewardship and in accordance with the policies and principles contained in NPS Management Policies 2006 and the appropriate Director's Orders.

Archeological Resources

In addition to the National Historic Preservation Act and NPS 2006 Management Policies, Director's Order 28B, Archeology, affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation, and protection of the nonrenewable and irreplaceable archeological resources in national parks.

Archeological resources have been retained as an impact topic because of existing known archeological sites in and around the Tower-Roosevelt area, especially at the Yancey's Hole location. Depending upon the alternative adopted, there may be an impact to these resources.

Historic Resources

National Historic Preservation Act, as amended in 1992, and Director's Order 28, Cultural Resource Management Guideline, require park managers to consider impacts on historic properties that are listed on or eligible to be listed in the National Register of Historic Places (NRHP) and to consult with State Historic Preservation Officers on these possible effects. The qualities that contribute to the eligibility for the NRHP are protected in accordance with the Secretary's Standards unless it is determined through a formal process that disturbance or natural deterioration is unavoidable.

Historic resources have been retained as an impact topic because the Tower-Roosevelt area includes three historic districts where possible projects could occur: the Grand Loop Road Historic District, Roosevelt Lodge

Historic District, and Tower Junction Ranger Station Historic District. Depending upon the action alternative adopted, historic resources may be affected.

Cultural Landscapes

According to Director's Order 28, Cultural Resource Management Guideline, a cultural landscape is "a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions."

Cultural landscapes have been retained as an impact topic because cultural landscapes inventories for the Roosevelt Lodge Historic District and the Tower Junction Ranger Station Historic District determined that contributing landscape features and patterns exist in these districts. Depending upon the action alternative adopted, cultural landscapes may be affected.

Human Health and Safety

The NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks in a safe and healthful environment. Further, the NPS strives to protect human life and provide for injury-free visits. The NPS is also committed to providing a safe work and living environment for employees.

Human health and safety has been retained as an impact topic because of concerns associated with activities and services in the Tower Roosevelt area that include: the potential for traffic accidents; conflicts with vehicles, pedestrians, wagons and horses; visitor's exposure to the weather and to gases from thermal vents below the waterfall; and the risk of debris flows near some cabins at Roosevelt Lodge (Floodplain Analysis Results for the Tower Junction Developed Area, Michael Martin, 2006).

Visual Resources (including Lightscapes)

Most of Yellowstone's landscapes appear in their natural state and retain their primeval characteristics. Less than two percent of the park is developed and facilities are predominantly grouped along the figure-eight road system, leaving substantial acreage in its natural condition. According to NPS Management Policies 2006, the NPS strives to protect scenic views and to "preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light."

Visual resources have been retained as an impact topic because facilities often stand out in stark contrast to the scenery and can affect visual resources in developed areas. A delicate balance must be maintained between protection of naturally dark nighttime skies and providing the level of light needed for human safety. The alternatives may affect the visual resources in the area.

Visitor Use and Experience

The NPS Organic Act directs the NPS to provide for public enjoyment of the scenery, wildlife, and natural and historic resources of national parks "in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations." Under the NPS Management Policies 2006, the NPS is committed to maintaining an atmosphere in the parks that is inviting and accessible to every segment of society and to provide opportunities for visitor enjoyment that are uniquely suited and appropriate to the parks' superlative natural and cultural resources.

Visitor use and experiences have been retained as an impact topic because this TRCP/EA addresses possible projects in the Tower-Roosevelt area that could affect visitor use and experience. The action alternatives propose differing levels of visitor use and experience.

Park Operations

According to NPS Management Policies 2006, "The National Park Service will provide visitor and administrative facilities that are necessary, appropriate, and consistent with the conservation of park resources and values. Facilities will be harmonious with park resources, compatible with natural processes, aesthetically pleasing, function, and energy and water efficient, cost-effective, universally designed, and as welcoming as possible to all segments of the population. NPS facilities and operation will demonstrate environmental leadership by incorporating sustainable practices to the maximum extent practicable in planning design, siting, construction, and maintenance."

Park operations have been retained as an impact topic because this TRCP/EA addresses possible projects in the Tower-Roosevelt area that could affect park operations. The action alternatives propose differing planning components for this use.

Topics Dismissed from Further Analysis

Water Quality

NPS policies require protection of water quality consistent with the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To achieve this goal, the U.S. Army Corps of Engineers has been charged with evaluating federal actions that could result in degradation of waters of the United States as a result of dredge and fill activities and issuing permits for actions consistent with the Clean Water Act. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions that affect waters of the United States.

Water Quality has been dismissed as an impact topic because water quality in the Tower-Roosevelt area is excellent, like all streams and lakes in Yellowstone National Park, and is designated Class 1, outstanding resource water by Wyoming Department of Environmental Quality. The action alternatives do not propose any possible impacts above a "negligible adverse impact" to these resources. Surface water runoff changes would be mitigated. The issue of water quantities for potable water supplies is addressed in park operations.

Hydrothermal Resources

Hydrothermal resources have been dismissed because there are no hydrothermal resources within the planning boundary. Geologic, paleontological and soils resources have been retained for further analysis.

Air Quality

Under the 1963 Clean Air Act (42 USC 7401 et seq.), federal land managers are responsible for protecting air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts. Section 118 specifies that units of the national park system must meet all federal, state, and local air pollution standards. The Clean Air Act, as amended, directs parks to seek the best air quality possible in order to "preserve natural resources and systems; preserve cultural resources; and sustain visitor enjoyment, human health, and scenic vistas" and designated Yellowstone National Park a Class I air quality area.

Air quality was dismissed as an impact topic because there would be no long-term impacts on air quality or visibility under any of the alternatives proposed by this TRCP/EA. Any effects, such as dispersed dust and exhaust emissions caused by truck traffic and equipment activity, would be limited to the duration of construction. Contractor activities would comply with state and federal air quality regulations, and contractors would operate under applicable permits.

Ethnographic Resources

Director's Order 28, Cultural Resource Management Guideline, defines ethnographic resources as any site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. According to DO-28 and Executive Order 13007 on sacred sites, the NPS should try to preserve and protect ethnographic resources.

Ethnographic resources were dismissed as an impact topic. Although ethnographic resources may be associated with the general Tower-Roosevelt area, insufficient information is available to locate physical features within areas affected by the alternatives.

Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality directed federal agencies to assess the effect of their actions on farmland soils classified as prime or unique by the U.S. Department of Agriculture's Natural Resources Conservation Service. Prime or unique farmland is defined as soil that produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. Prime and unique farmlands were dismissed as an impact topic because none of the soils in the Tower-Roosevelt area are classified as prime and unique farmlands.

Environmental Justice

Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low income populations and communities. Environmental justice was dismissed as an impact topic because none of the alternatives proposed by this plan would have adverse effects as defined in the Environmental Protection Agency's Environmental Justice Guidance (1998).

Chapter 2: ALTERNATIVES CONSIDERED

OVERVIEW

This chapter of the Tower-Roosevelt Comprehensive Plan/EA (TRCP/EA) describes three alternatives for preserving and protecting Tower-Roosevelt's natural, cultural, and visual resources and visitor experience when guiding, designing, and evaluating future change. The kinds of changes that are addressed in the TRCP/EA include potential future actions such as alterations, additions, removal or replacements to visitor services, facilities (buildings, roads, and trails), and utilities.

Future changes in development and redevelopment in the Tower-Roosevelt area arise when facilities and utilities age or become inadequate. They may include the addition, removal, replacement, or improvement of buildings, roads, parking areas, and utility systems.

The following alternatives will be described in full detail in this chapter.

Alternative A: The *No Action* alternative would continue the current practice of evaluating projects individually, on a case-by-case basis with separate environmental compliance actions, rather than adopting a comprehensive plan. The alternative assumes an undetermined level of change to existing conditions.

Alternatives B and C: The action alternatives propose options for a Tower-Roosevelt Comprehensive Plan that would preserve and protect park natural, cultural, and visual resources, values, and visitor experience in the Tower-Roosevelt area by (a) adopting desired conditions for resources and visitor experiences, and (b) defining boundaries, limits, and guidelines of where and how development can occur in order to achieve those desired conditions and experiences. Alternative B proposes a *Medium Level of Change*, while Alternative C proposes a *Low Level of Change* for the Tower-Roosevelt area.

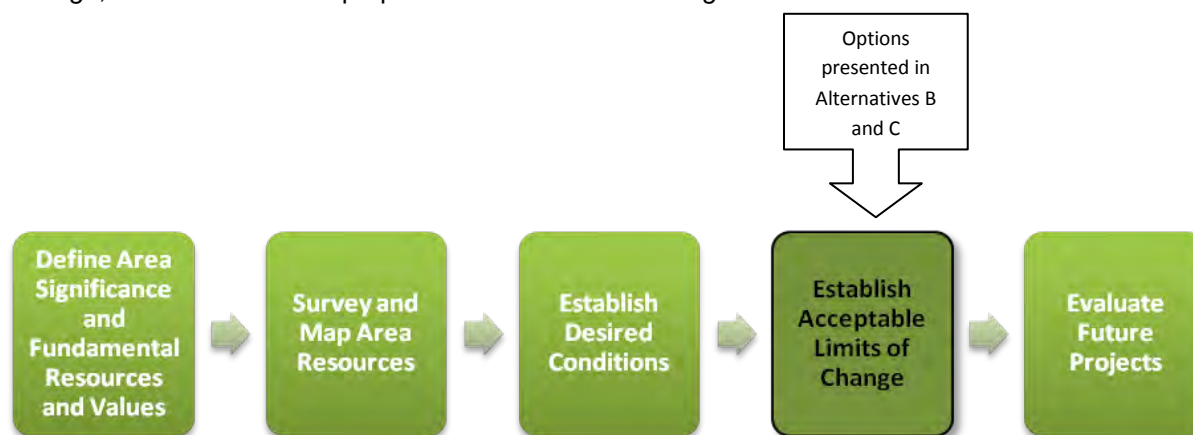


Figure 3: Within the comprehensive planning process, action Alternatives B and C propose options for acceptable limits of change. Alternative B proposes a medium level of change and Alternative C proposes a low level of change to the Tower-Roosevelt area.

Descriptions and Comparisons of the Alternatives

Each alternative is explained in detail in this chapter. Alternatives B and C vary by the level of acceptable limits of change that is designated for each of the eight planning locations. For this reason, the components of acceptable limits of change, explained in Chapter 1, are described for each location for the action alternatives B and C. Figure 4 illustrates how these planning components are used and establishes a format that will be further developed in Figures 6a-b through 13a-b. Figure 5 shows maps comparing the three alternatives for the Tower-Roosevelt area.

The Tower-Roosevelt area has been divided into eight planning locations to provide comparisons between the three alternatives. The eight locations are: Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, Tower Administrative, Tower Junction, Tower Fall Trailhead, Tower Fall Campground, and Yancey's Hole.

Maps 1 through 9 have been developed to give context for all eight locations; showing proposed buildable planning zones for each alternative at all eight locations on one map for reference. Maps 1 through 3 depict Alternative A (No Action), Maps 4 through 6 depict Alternative B, and Maps 7 through 9 depict Alternative C.

Figures 6a-b through 13a-b illustrate all three alternatives on one page for each of the planning locations. These figures compare each of the three components of acceptable limits of change by alternative; (1) buildable planning zones, (2) planning prescriptions, and (3) design standards.

To further compare the alternatives, the following tables have been developed:

Table 1 summarizes the anticipated environmental impacts for Alternatives A, B, and C. Only those impact topics that have been carried forward for further analysis are included in this table (Chapter 4, Environmental Consequences, provides a more detailed analysis of these impacts.).

Table 2 compares each alternative's success in meeting plan objectives that were presented in Chapter 1. Alternative A does not meet many of these objectives, while B and C meet all.

Table 3 compares the square footage of development footprint for each alternative. It also compares the possible projects that are accommodated within that footprint for each of the eight locations in the Tower-Roosevelt area. Development footprint is described in Chapter 1. Possible projects are described in Chapter 2.

ALTERNATIVE A: NO ACTION

Under Alternative A, *No Action*, the NPS would not develop a comprehensive plan to guide changes to visitor services, facilities, and utilities in the Tower-Roosevelt area. There would be an undetermined level of change to existing conditions. Much of the Tower-Roosevelt area would remain the same, yet projects could be proposed in the future. Yellowstone National Park staff would evaluate project proposals for visitor use, facilities, and utilities in the Tower-Roosevelt area on a case-by case basis, with separate environmental compliance analyses.

Planning zones, planning prescriptions (primary functions and development footprint), design guidelines, and possible projects are all defined and described in Chapter 1, Purpose and Need

Since cultural and natural resources have been recently surveyed and mapped for this area, resource information would be available to guide environmental compliance analysis for these project proposals; potentially resulting in an improvement in efficiency and effectiveness. However, desired conditions for natural, cultural, and visual resources and visitor experience (a part of the comprehensive planning process) would not be adopted. The components of *acceptable limits of change* would not be utilized; boundaries, limits, and guidelines of where and how development can occur would not be available to comprehensively guide change.

Under this alternative, possible projects could be proposed in the future. They may include a variety of sizes and configurations. Each project proposal would be evaluated individually on its capacity to meet needs. Each project would use separate environmental compliance analysis. An evaluation of cumulative impacts of these individual actions, constructed incrementally over time (required by NEPA), would occur on a project-by-project basis. The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt area, impacts from projects are likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

For the purposes of the plan, the Tower-Roosevelt area has been divided into eight planning locations where facilities are clustered: Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, Tower Administrative, Tower Junction, Tower Fall Trailhead, Tower Fall Campground, and Yancey's Hole locations. These locations are described in Chapter 1, Purpose and Need. Figures 6 through 13 compare all three alternatives by location using buildable planning zone maps, planning prescriptions tables and design standards. Maps 1 through 3 show this alternative in context of the Tower-Roosevelt area.

The following discussion describes the no action (no comprehensive plan) alternative for each of these locations.

Roosevelt Lodge Location

The Roosevelt Lodge location would continue to provide rustic ranch-style lodging and dining. It is likely that additional visitor services, facilities, and/or utilities may be proposed within the existing historic district in the future. Possible projects such as additional employee restrooms, shower houses, and guest cabins and improvements to the existing parking lot may occur. Changes would be proposed as needed, on a

case-by-case basis with separate environmental compliance analyses. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 6a and 6b, which compares all alternatives for the Roosevelt Lodge location and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 6b.

Roosevelt Corrals Location

The Roosevelt Corral location would continue to offer visitors opportunities associated with traditional horse use. Support facilities and utilities may be updated as necessary. Possible projects such as a saddle barn, hay barn, and visitor shade shelter may occur. Changes would be proposed as needed, on a case-by-case basis with separate environmental compliance analyses. Roosevelt Corral is not historic; however it is immediately adjacent to the Grand Loop Road Historic District and Roosevelt Lodge Historic District. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 7a and 7b for the Roosevelt Corrals location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 7b.

Tower Ranger Station Location

This location is likely to remain as the NPS visitor contact location. Possible projects such as replacement of the backcountry office and additional parking may occur. This historic district is immediately adjacent to the Grand Loop Road Historic District. Changes would be proposed as needed, on a case-by-case basis with separate environmental compliance analyses. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 8a and 8b for the Roosevelt Corrals location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 8b.

Tower Administrative Location

The Tower Administrative location would continue to be used as the base for administrative and maintenance activities. Half of this location is included in the Tower Junction Ranger Station Historic District. Possible projects such as a new emergency services building and replacement employee housing may occur. Decisions on proposals for housing improvements would be guided by the 1992 Employee Housing Plan and the 2005 Housing Management Plan. They showed a deficit of 3 year-round quarters and 9 seasonal quarters. Changes would be proposed as needed, on a case-by-case basis with separate environmental compliance analyses. Changes would be guided by recent natural and cultural

resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 9a and 9b for the Tower Administrative location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 9b.

Tower Junction Location

This crossroads would continue to provide visitor facilities. Although this location is not in a historic district, it is immediately adjacent to the Grand Loop Road Historic District and very visible from many points within Pleasant Valley. Possible projects such as construction of a new commercial services building, restrooms, visitor contact station, and/or additional parking may occur. Changes would be proposed as needed, on a case-by-case basis with separate environmental compliance analyses. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 10a and 10b for the Tower Junction location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 10b.

Tower Fall Trailhead Location

The Tower Fall Trailhead location would likely continue to provide trailhead parking, restrooms, and commercial services for visitors using the Tower Fall trail. This location is immediately adjacent to the Grand Loop Road Historic District. Under the Canyon Junction to Tower Junction Road Improvement EA (2001), the park proposed removal of the general store and parking area improvements. Currently, the Federal Highways project related to the road and associated parking has been postponed. Possible projects such as alternations to the Tower Fall General Store and the parking area and trailhead may occur. Changes would be proposed as needed, on a case-by-case basis with separate environmental compliance analyses. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 11a and 11b for the Tower Fall Trailhead location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 11b.

Tower Fall Campground Location

This location would likely continue to provide a campground and a small employee housing area. Possible projects such as an additional vault toilet and replacement housing may occur. If changes are needed, they would be proposed and evaluated on a case-by-case basis with separate environmental

compliance analysis. Changes would be guided by recent natural and cultural resource assessments. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 12a and 12b for the Tower Fall Campground location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 12b.

Yancey's Hole Location

The western style cookout would likely continue and facilities at the Yancey's Hole location that support this operation would remain. Possible projects such as replacement of the dining shelter, alterations to the serving shelter, and installation of a vault toilet may occur. If changes are needed, they would be proposed and evaluated on a case-by-case basis with separate environmental compliance analyses. Changes would be guided by the recent natural and cultural resource surveys. However, without the three components of acceptable limits of change, it is possible that facilities would be placed anywhere within this location, with any variety of functions, sizes and designs.

The no action alternative is illustrated on Figures 13a and 13b for the Yancey's Hole location, which compares all alternative, and also on the Maps 1 through 3, which shows the alternative in context of the Tower-Roosevelt Area. Under this alternative, there would be no comprehensive plan; no adoption of acceptable limits of change or planning components shown on page 13b.

ALTERNATIVE B: MEDIUM LEVEL OF CHANGE

Using the planning process that is described in Chapter 1, Alternative B establishes an option for the Tower-Roosevelt Comprehensive Plan that would preserve and protect park natural, cultural, and visual resources and values and visitor experience by (a) consulting the recent natural and cultural resource surveys, (b) adopting the list of desired conditions for resources and visitor experience, (c) choosing a project from the list of possible projects for that location, and (d) setting a medium level for acceptable limits of change to existing development that supports these desired conditions.

Under Alternative B, a medium level of change to the Tower-Roosevelt area would be accommodated through the three components of acceptable limits of change; (1) buildable planning zones, (2) planning prescriptions, and (3) design standards. Compared to Alternative C, Alternative B accommodates more change to the existing development footprint; whether that change is a net gain

Acceptable limits of change are guiding principles that define restrictions on what kind, where, and how much development and redevelopment can occur in the Tower-Roosevelt area without resulting in unacceptable impacts to natural, cultural, visual resources, or visitor experience. . They help achieve desired resource conditions and visitor experiences.

Definitions: Components of acceptable limits of change, such as planning zones, planning prescriptions (primary functions and development footprints), design guidelines, and the concept of possible projects are all defined and described in Chapter 1, Purpose and Need.

or net-reduction. Overall, more and larger buildable planning zones would accommodate a larger development footprint and therefore more change in the Tower-Roosevelt area in Alternative B than Alternative C. This alternative provides the space for more possible projects to be accommodated in buildable planning zones. For the Tower Fall Trailhead location, the possible removal of a facility (which would constitute a greater change in development footprint than in Alternative C), is included in this alternative.

A larger acceptable net change in development footprint is accommodated in these larger buildable planning zones. Under this alternative, the existing overall net change in development footprint for buildings in the Tower-Roosevelt area (which is currently 115,000 square feet) could be increased by approximately 21,225 square feet; a 19% net gain. The overall development footprint for paved parking (which is currently approximately 142,332 square feet) could be increased by up to approximately 43,000 square feet; a 29% net gain. These overall ranges in development footprint are dispersed throughout the Tower-Roosevelt area in specified locations described below.

Alternative B provides more flexibility in design options for the placement, size, and character of possible future projects than does Alternative C. Under this alternative, a list of possible projects that produce a medium level of change is proposed for each location. The projects are accommodated within larger buildable planning zones and greater development footprints. Figures 6a-b through 13a-b compare all three alternatives, by location, using buildable planning zone maps, planning prescriptions tables, and design standards. Maps 4 through 6 show Alternative B within the greater context of the Tower-Roosevelt area. Possible projects in the Tower-Roosevelt area, represented in Alternative B, are shown in Table 3 (Comparison of Development Footprint and Possible Projects for Each Alternative). Planning components are defined and described in Chapter 1. The methodology used to calculate development footprints associated with possible projects is described in Chapter 1.

The three planning components ensure that desired conditions for resources and visitor experience are still achieved, even if there is as medium level of change in services, facilities, and utilities to meet future needs. The buildable planning zones, planning prescriptions, design standards and possible projects proposed in Alternative B allow a more comprehensive assessment of cumulative impacts over the long term at the Tower Roosevelt area than Alternative A, No Action. Impacts to these specific locations that are associated with the application of the three planning components and associated possible projects have all been assessed in Chapter 4, Environmental Consequences.

For the purposes of the plan, the Tower-Roosevelt area has been divided into eight separate locations where facilities are clustered: Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, Tower Administrative, Tower Junction, Tower Fall Trailhead, Tower Fall Campground, and Yancey's Hole locations. These locations are described in Chapter 1, Purpose and Need under the subheading "Background." The following discussion describes Alternative B: Medium Level of Change, for each of these locations.

Roosevelt Lodge Location

The Roosevelt Lodge would continue to provide rustic ranch-style lodging and dining.

Buildable Planning Zones: This location is zoned in three ways; Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 6a and Maps 4 through 6 illustrate the size and location of these

zones. Since this is a historic district, the Buildable Historic Zone would be designated for those portions of the Roosevelt Lodge Historic District where facility changes may occur while still preserving the historic character of the district. It is shown as larger than in Alternative C; allowing an expansion of development north of the northeastern cluster of cabins, and north of the western cabin cluster; beyond existing conditions. This zone shows appropriate locations for this expansion; following historic patterns of the organization and clustering of buildings. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails or underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery or historic viewsheds. The access roads into the Roosevelt Lodge are shown as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this contributing feature within the Roosevelt Lodge Historic District. The Buildable Natural and Buildable Circulation Zones are essentially the same for alternatives B and C, although possible projects may differ.

Planning prescriptions: Planning prescriptions for the Roosevelt Lodge location are illustrated in Figure 6b. The existing development footprint for buildings at the Roosevelt Lodge Location is 62,967 square feet. Within the Buildable Historic Zone at this location, the maximum net gain in development footprint for buildings is 7,200 square feet; an 11% net gain that can accommodate possible projects such as additional cabins, employee restrooms, and a shower house. The net gain in development footprint for parking is 10,000 square feet (a 32% net gain that accommodates approximately 20 additional autos and 5 additional RVs). There will be no net gain in unpaved parking at this location (currently at a development footprint of 10,484 square feet). This alternative allows a larger maximum change in development footprint than in Alternative C, since the buildable planning zone is larger. If buildings or paved parking-areas are removed (in accordance to Section 106 of the National Historic Preservation Act), they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, “concession visitor facilities and operations related to dining and lodging” would be assigned to achieve the desired condition of preserving this visitor service and historical function; same as in Alternative C. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either alternative. The primary function for this zone is “access road” in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, “trails and underground utilities” for both action alternatives, however, it is assumed that it would be greater in Alternative B than in C; accommodating more possible projects.

Design standards, illustrated in Figure 6b, are the same for Alternatives B and C. Within the Buildable Historic Zone, design standards are tailored to preserve buildings, features and patterns that contribute to the significance and character of this historic district. The lodge and surrounding cabin clusters are all oriented around a meadow. The lodge would remain the dominant focal point in both size and location. It has an existing development footprint of 2,000 square feet (front section). Additional buildings would follow existing historic building cluster arrangements. Any changes would be compatible with the appearance, size, and layout of contributing buildings within the district. The maximum size for any single building that may be introduced within this zone is 650 square feet; which is the average size of existing shower-houses within the cluster of smaller cabins in the district. Design standards for changes to parking areas are also included in this zone. These standards are based on the Historic Structures Report (1993) and the Cultural Landscape Inventory (2007). Chapter 3, Affected Environment contains additional descriptions of these contributing features and patterns. Under the Buildable Circulation Zone, materials, scale and design of the historic access road should be preserved. Under the Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural resource impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is within the Roosevelt Lodge Historic District. The Roosevelt Lodge Historic Structures Report (1993) and the Roosevelt Lodge Historic District Cultural Landscape Inventory (2007) outline contributing features and patterns. The secluded nature of this complex is dependent upon trees and a ridge that screen it from the road. The view from the lodge porch is eligible as a contributing feature within the district. Two cultural resource sites are shown within the historic district boundary. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the northwestern and southeastern corner of the district, are considered resources that may require additional compliance. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1 and DO 77-2 law and policy.

Roosevelt Corrals Location

The Roosevelt Corral location would continue to offer visitor opportunities associated with traditional horse use.

Buildable Planning Zones: This location is zoned in three ways; Buildable Development, Buildable Natural, and Buildable Circulation Zones. Figures 7a and Maps 4 through 6 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes could take place without unacceptable impacts. Figure 7a illustrates that this zone is larger than in Alternative C; allowing an expansion of development beyond existing conditions to the northwest and southeast. A large portion of this location is also zoned as Buildable Natural, which accommodates trails or underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above ground obstructions to the natural scenery. Roads are zoned as Buildable Circulation, which designates certain planning prescriptions and design standards. The Buildable Natural and Buildable Circulation Zones are essentially the same for alternatives B and C.

Planning prescriptions: Planning prescriptions for the Roosevelt Corrals are shown in Figure 7b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is 6,671 square feet. The maximum net gain in development footprint for buildings under this alternative is 2,000 square feet (a 30% net gain) with no net-gain in development footprint for unpaved parking. This can accommodate possible projects such as replacement of the existing saddle barn and hay barn, construction of a new shade shelter, and improvement of the parking area. If buildings or parking-areas are removed, they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, "concession visitor facilities and operational facilities related to traditional horse use," would be assigned to this zone to preserve the desired condition for this recreational opportunity. Within the Buildable Circulation Zone, no net gain in development footprint is proposed. "Access road" is assigned as the primary function. Within the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities." Planning prescriptions for the Buildable Natural and Buildable Circulation Zones are the same for both action alternatives.

Design standards: Design standards, illustrated in Figure 7b, are the same for alternatives B and C. Within the Buildable Development Zone, they are tailored toward maintaining the "western ranch" style and character of this location. Although buildings are rustic, they are plain and modest in size and character; similar to a western dude ranch. With the goal of keeping the Roosevelt Lodge as the dominant

building in the general area (building footprint is 2,000 square feet for front portion); corral buildings should remain similar to their existing size. Rather than using one large new building in this location, building size should be broken up into smaller, attached units. In order to preserve the historic vista, buildings within the Roosevelt Corral location should not be visible from the Roosevelt Lodge porch or be located immediately adjacent to the lodge access road. Since the Roosevelt Corral location is adjacent to the Grand Loop Road Historic District, buildings and structures should be screened from the road using vegetation. Within the Buildable Circulation and Buildable Natural Zones, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic District and Roosevelt Lodge Historic District. Therefore the Roosevelt Lodge Historic Structures Report (1993) and the Roosevelt Lodge Historic District Cultural Landscape Inventory (2007) outline contributing features and patterns that may be affected by development within the Roosevelt Corral location. This location is visible from many points within Pleasant Valley. A cultural resource site is shown the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the northeastern and southwestern corner of the location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2.

Tower Ranger Station Location

The Tower Ranger Station location would continue to provide NPS visitor and administrative services in the historic Tower Junction Ranger Station.

Buildable Planning zones: This location is zoned in three ways; Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 8a and the Maps 4 through 6 illustrate the size and location of these zones. Since this is a historic district, the Buildable Historic Zone would be designated for those portions of the Tower Junction Ranger Station Historic District where facility changes may occur while still preserving the historic character of the district. It is shown as larger than in Alternative C; allowing for expansion of development to the west; beyond existing conditions. This zone shows appropriate locations for parking expansion that would accommodate RVs; preserving the front of the ranger station as open space. A large portion of this location is also zoned as Buildable Natural, which accommodates trails and underground utilities that do not exceed a minor adverse impact for natural and cultural resources, and limit any above-ground obstructions to the natural scenery or historic viewsheds. The access road into the Tower Ranger Station location is shown as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this contributing feature within the historic district. The Buildable Natural and Buildable Circulation Zones are essentially the same for alternatives B and C.

Planning prescriptions: Planning prescriptions for the Tower Ranger Station location are illustrated in Figure 8b. Within the Buildable Historic Zone at this location, the existing development footprint for buildings is 3,878 square feet. The maximum net gain in development footprint under this alternative is 1,200 square feet (a 31% net gain); which can accommodate possible projects such as expanding the backcountry office or converting the ranger station into a visitor contact station or other adaptive reuses. The net gain in development footprint for parking is 2,750 square feet (a net gain of 22% from the existing 12,362 square feet footprint), which can better accommodate RVs. There will be no net gain in unpaved

parking at this location. This alternative has a larger maximum change in development footprint than in Alternative C. If buildings, roads, or paved parking areas are removed (in accordance to Section 106 of the National Historic Preservation Act), they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, "NPS administration and visitor facilities" would be assigned to this location, which is the same in Alternative C. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either action alternative. The primary function is "access road" in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities," for both Alternatives B and C.

Design standards: Design standards for the Tower Ranger Station location are illustrated in Figure 8b. They are the same for Alternatives B and C. Within the Buildable Historic Zone, design standards are tailored to preserve buildings, features and patterns that contribute to the significance and character of this historic district. The ranger residence (former ranger station) would remain the dominant focal point in both size and location; presiding over the road and Pleasant Valley. The maximum size for any one (new or additional) building is up to 1-1/2 stories high and 1,200 square feet; which maintains the ranger station (2400 square feet) as the dominant building amongst smaller buildings. Any changes and additional buildings would be compatible with the appearance, size, and layout of the district. Design standards for changes to parking are also included in this zone. They preserve the character of open space around the ranger station, and the character of the narrow access road (part of the Buildable Circulation Zone) into the complex. These standards are based on the Tower Junction Ranger Station Historic District Cultural Landscape Inventory (2007). Chapter 3, Affected Environment, contains additional descriptions of these contributing features and patterns. Within the Buildable Circulation Zone, design standards address materials, scale, and design that would preserve the historic access road. Under the Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural resources impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural survey maps (Appendix B) show that this location is within the Tower Junction Ranger Station historic district, and is adjacent to the Grand Loop Road Historic District. The Tower Junction Ranger Station Historic District Cultural Landscape Inventory (2007) outlines contributing features and patterns. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands and waters of the U.S. are found within this location. They are considered resources that may require additional compliance and are to be avoided. If avoidance is not possible, impacts would be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. This location is visible from many points within Pleasant Valley.

Tower Administrative Location

The Tower Administrative location would continue to be used as the base for administrative and maintenance activities.

Buildable Planning Zones: This location is zoned in four ways; Buildable Administrative, Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 9a and the Maps 4 through 6 illustrate the size and location of these zones. Part of this location is within the Tower Junction Ranger Station Historic District. Therefore, the northern portion of this location is zoned Buildable Historic for those portions of the where facility changes may occur while still preserving the historic character of the district. This zone is the same in Alternative C. The Buildable Administrative Zone would be designated

for those portions of this location where resources that may require additional compliance and historic districts are not present. Figure 9a illustrates that this zone is larger than in Alternative C; allowing expansion of development beyond existing conditions to the south. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery. The access road is zoned as Buildable Circulation, which designates certain planning prescriptions and design standards. The Buildable Natural and Buildable Circulation Zones are essentially the same for Alternatives B and C.

Planning prescriptions: Planning prescriptions for the Tower Administrative location are shown in Figures 9b. Within the Buildable Administrative Zone at this location, the existing development footprint for buildings is 17,322 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 5,400 square feet; a 31% net gain that can accommodate possible projects such as a ranger resident (if the ranger station at the Tower Ranger Station location was converted from a residence to another use), replacement of trailer housing, and an emergency services building. There is no net change to development footprint for paved or unpaved parking within this zone. If buildings or paved parking areas are removed, they can be replaced by similar-sized facilities without a net gain in development footprint; allowing some additional flexibility. The primary function, "NPS administrative and operational facilities" is assigned to both the Administrative and Buildable Historic Zones at this location for both action alternatives. Within the Buildable Historic Zone, there is no net gain proposed for development footprint. Within the Buildable Circulation Zone, no net gain in development footprint and the primary function, "access road" is proposed. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities." Planning prescriptions for the Buildable Natural Zone and Buildable Circulation Zones are the same for both Alternatives B and C.

Design standards: Design standards are illustrated in Figure 9b, and are the same for alternatives B and C. Since part of this location is within the Tower Junction Ranger Station Historic District, design standards for both the Buildable Historic and the adjacent Buildable Administrative Zones are meant to preserve contributing features and patterns of the historic district. Those portions of this location that are within the Buildable Historic Planning Zone should remain historically compatible in materials, design, and scale. However, in the more flexible Buildable Administrative Zone, design standards allow for more flexibility in the materials, size, and scale of additional facilities. Here, buildings could be a maximum of two stories high; lower than the average surrounding tree canopy. The maximum building footprint would be up to 3,500 square feet, which is the size of the existing housing four-plex. Use of non-reflective materials would lessen visual impacts. Currently, part of this location can be seen from the Grand Loop Road historic district, and therefore screening this location from view of visitor use areas is important to achieving desired conditions for visual resources in the Tower-Roosevelt area.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is partially within the Tower Junction Ranger Station Historic District. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Rare plants, wetlands and waters of the U.S., shown in the south and eastern portions of this location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. Portions of this location are visible from the Roosevelt Lodge guest cabins and adjacent trails.

Tower Junction Location

The Tower Junction location would continue to provide visitor facilities and administrative support for retail functions. Additional visitor services, facilities, and utilities can be accommodated within this location under this alternative.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development, Buildable Natural, and Buildable Circulation Zones. Figures 10a and the Maps 4 through 6 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes can take place without unacceptable impacts to resources. Figure 10a shows that this zone is larger than in Alternative C; allowing an expansion of development beyond existing conditions to the north and to the southeast. Since a hillside restricts expanding the Buildable Natural Zone to the south, additional space is gained by realigning the Grand Loop Road to the north. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utilities that do not exceed minor adverse impacts to natural and cultural resources, and do not create any above-ground obstructions to the natural scenery. This zone is essentially the same in Alternatives B and C. The Grand Loop Road Historic District is zoned as Buildable Circulation Zone, which designates certain planning prescriptions and design standards to preserve this historic district while making changes to it.

Planning prescriptions: Planning prescriptions for the Tower Junction location are shown in Figure 10b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is 3,391 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 9,000 square feet (a 2.5 times greater footprint). This would accommodate possible projects such as a commercial services building, a remodeled service station building, additional public restrooms, and a visitor contact station. The existing development footprint for parking is 32,301 square feet. The net change in development footprint for paved parking is a net gain of up to 35,400 additional square feet; a 100% net gain. This would accommodate up to 85 autos and 8 oversized vehicles (needed for a commercial building of this size). There will be no net gain in unpaved parking at this location. If buildings or paved parking areas are removed, they can be replaced by similar-sized facilities at no net gain in development footprint. This allows some additional flexibility in design solutions for this area. The primary function, "concession visitor facilities and NPS visitor facilities" would be assigned to this zone, which is the same for Alternative C. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either action alternative. The primary function is "access road" in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities," for both Alternatives B and C.

Design standards: Design standards, illustrated in Figure 10b, are the same for alternatives B and C. This location is visible from many directions within the Tower-Roosevelt area, due to the open terrain, and also visible from the Grand Loop Road Historic District. Therefore, the design standards are tailored toward preserving the scenery of the Tower-Roosevelt area and the historic district. Within the Buildable Development Zone, buildings and structures should be screened from the road using vegetation, a berm, and a 30-foot set-back. Rather than using one large new building in this location, building size should be reduced visually by using smaller, attached units at no larger than 2,000 square feet. The existing gas station (excluding the pump area) is 1300 square feet. Plantings would integrate the buildings into the landscape. Building height should remain no larger than 1-1/2 stories high (similar to the Ranger Station), which allows the buildings to be screened behind the most massive portions of trees that grow in this area; higher building would be visible behind the more thin tree-tops. Parking areas (and the reflective

surfaces of vehicles) should be hidden behind buildings to the extent possible, using the more visually-appealing architecture as a way to lessen impacts to the scenery. Within the Buildable Natural and Buildable Circulation Zones, design standards are meant to preserve the natural scenery and to lessen the visual, natural and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic. A cultural resource site is within the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Rare plants, shown in the northeastern and southwestern corner of the location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. Within the visual resources maps, this area is visible from many directions within the Tower-Roosevelt area.

Tower Fall Trailhead Location

The Tower Fall Trailhead location would continue to provide visitor services and facilities.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development, Buildable Natural, and Buildable Circulation Zones. Figures 11a and the Maps 4 through 6 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes may occur without unacceptable impacts to resources. Figure 11a shows that this zone is smaller in Alternative B (toward the north) than in Alternative C; due to the reduction or possible removal of the general store. This constitutes a higher level of change than in Alternative C (which proposes a reduction but not a removal of the store). A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utilities that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above ground obstructions to the natural scenery. It is essentially the same for Alternative C. The Grand Loop Road and parking area is zoned as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this resource. It is shown as smaller in Alternative B; converting the space that is currently used for the store into parking and reducing existing parking at the southern portion of this location.

Planning prescriptions: Planning prescriptions for the Tower Fall Trailhead are shown in Figure 11b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is approximately 10,000 square feet. Under this alternative, there is a net reduction in buildings development footprint of between 5,000 and 10,000 square feet (net reduction of between 50-100%). This would be accomplished through the reduction or removal of the general store; a greater level of change than in Alternative C. The primary function "concession visitor facilities and NPS visitor facilities," would be assigned to this zone. The existing development footprint for paved parking is 43,401 square feet. The net change in development footprint for paved parking is a net reduction of up to 6,000 square feet; a 14% net reduction. This is due to the possible reduction/removal of the general store. There will be no net gain in unpaved parking at this location. The primary function, "visitor roads and parking" would be assigned to this zone. This would be the same for Alternative C. A large portion of this location is zoned as Buildable Natural Zone, where there is an undetermined development footprint for the primary functions, "trails and underground utilities," for both Alternatives B and C.

Design standards: Illustrated in Figure 11b, design standards are the same for both Alternative B and C at this location. Within the Buildable Development Zone, they are tailored toward preserving the natural setting and scenery and the adjacent Grand Loop Road Historic District. Facilities would be screened from the road using landforms and trees. Buildings would be blended into the landscape by using plantings and by breaking up one large building-mass into smaller, attached units. The existing general store has a footprint of 8,253 square feet. Within the Buildable Circulation Zone, design standards are meant to preserve the Grand Loop Road Historic District. Under the Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic District and to some cultural resource sites. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. This location is also visible from the road. There are some limiting factors related to soils in this location. The septic system cannot take any additional load in this location.

Tower Fall Campground Location

The Tower Fall Campground location would continue to offer a 32-site campground for visitors.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development Zone, Buildable Natural Zone, and Buildable Circulation Zone. Figures 12a and the Maps 4 through 6 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes could take place without unacceptable impacts to resources. Figure 12a shows that this zone is larger in Alternative B than in C; allowing expansion of development beyond existing conditions within the employee dormitory area, and within the campground. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery. This zone is smaller in Alternative B than in C, since the Buildable Development Zone is so much larger in this alternative. The campground road is zoned as Buildable Circulation Zone, which is the same for Alternative C.

Planning Prescriptions: Planning prescriptions for the Tower Campground Location are shown in Figure 12b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is 8,044 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 1,300 square feet; a 16% net gain that can accommodate possible projects such as a vault toilet and replacement housing. There will be no net gain in paved or unpaved parking at this location. If buildings or paved parking areas are replaced with similar sized facilities, there would be no net gain in development footprint; allowing additional flexibility. The sewer-system capacity is a limiting factor within this location; no additional loads on sewer can be accommodated. The primary function, "visitor and operational facilities" is assigned to this zone. Within the Buildable Circulation Zone, no net gain in development footprint is proposed. The primary function of this zone is for visitor access. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities." Planning prescriptions for the Buildable Natural Zone and the Buildable Circulation Zones are the same for Alternatives B and C.

Design Standards: Design standards, illustrated in Figure 12b, are the same for alternatives B and C. Within the Buildable Development Zone, they are tailored toward preserving the natural scenery for visitors using this campground; blending facilities into the landscape. A single building should be no larger than 1,200 square feet and 1 story in height (existing dorm size). Under the Buildable Natural Zone and the Buildable Circulation Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that there are some cultural resources sites within this location. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. The employee housing area is visible from the public campground. The septic system cannot take any additional load in this location.

Yancey's Hole Location

The western style cookout would continue and the facilities at the Yancey's Hole location that support this operation would remain.

Buildable Planning Zones: This location is zoned in two ways: Development and Buildable Natural Zones. Figures 13a and the Maps 4 through 6 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes may occur without unacceptable impacts to resources. This cookout site was previously constructed within a cultural resource site in the 1950s. Therefore the Buildable Development Zone is designated tightly around the existing development with a slight expansion to the north and east; greater than in Alternative C, which allows no expansion. The Buildable Natural Zone is shown where trails that do not exceed a minor adverse impact are accommodated (same for alternative C).

Planning Prescriptions: Figure 13b illustrates planning prescriptions for this location. Within the Buildable Development Zone, the existing development footprint for buildings is 2,732 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 125 square feet; a 4% net gain that can accommodate possible projects such as a small vault toilet and improving the picnic and serving shelters. There will be no net gain in unpaved parking at this location. The primary function is "concession western cookout facilities." Within the Buildable Natural Zone, no net gain in development footprint is accommodated. However, if facilities such as trails are removed, they can be replaced within this zone with no net gain in development footprint. Planning prescriptions for the Buildable Natural Zone is the same for Alternatives B and C.

Design Standards: Design standards, illustrated in Figures 13b and 14, are the same for alternatives B and C. They are intended to preserve the wilderness character for those who visit this location by horseback or wagon. Within the Buildable Development Zone, facilities should blend into the surrounding landscape. The scale, materials, and design of these facilities should remain small, modest, and rustic; with a single building footprint at no larger than 1,800 square feet, which is the size of the existing picnic shelter. Excavation should be avoided to minimize impacts to resources. Design standards within the Buildable Natural Zone are meant to preserve the narrow, winding character of the trails; preserving natural and cultural resources.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location contains a cultural resource site within the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require

additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the southern portion of the location, and the creeks flowing through the location are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. This site is very visible from adjacent trails and roads.

ALTERNATIVE C: LOW LEVEL OF CHANGE

Using the planning process that is described in Chapter 1, Alternative C establishes an option for the Tower-Roosevelt Comprehensive Plan that would preserve and protect park natural, cultural, and visual resources and values and visitor experience by (a) consulting the recent natural and cultural resource surveys, (b) adopting the list of desired conditions for resources and visitor experience, (c) choosing a project from the list of possible projects for that location, and (d) setting a low level for acceptable limits of change to existing development that still supports these desired conditions.

Under Alternative C, a low level of acceptable limits of change to the Tower-Roosevelt area would be accommodated through the three components of acceptable limits of change; (1) buildable planning zones, (2) planning prescriptions, and (3) design standards. Compared to Alternative B, Alternative C accommodates less net change to the existing development footprint; whether that change is a net-gain or net-reduction. Overall, less and smaller buildable planning zones would accommodate a smaller development footprint and therefore less change in the Tower-Roosevelt area in Alternative C than in Alternative B. This alternative provides less space for future possible projects to be accommodated in buildable planning zones. However, in the Tower Fall Trailhead location, the possible reduction of a facility is considered less change than the possible removal of that facility (proposed under Alternative B); therefore the reduction (and not the removal) is included in this alternative.

In general, smaller buildable planning zones would accommodate less change in development footprint in the Tower-Roosevelt area than in Alternative B. Under this alternative, the existing overall net-gain in development footprint for buildings in the Tower-Roosevelt area (which is currently 115,000 square feet) is approximately 8,050 square feet for buildings; a 7% net gain, and approximately 31,000 square feet for parking (which is currently approximately 142,332 square feet); a 22% net gain. These overall ranges are dispersed throughout the Tower-Roosevelt area in the eight locations discussed below.

Since the buildable planning zones are only slightly larger than existing conditions and smaller than what is proposed in Alternative B, Alternative C provides less flexibility in design options for the placement, size, and character of possible future possible projects than does Alternative B. Under this alternative, a list of possible projects that illustrate a low level of change is proposed for each location. The projects are accommodated within buildable zones that are smaller than in Alternative B; with smaller development

Acceptable limits of change are guiding principles that define restrictions on what kind, where, and how much development and redevelopment can occur in the Tower-Roosevelt area without resulting in unacceptable impacts to natural, cultural, visual resources, or visitor experience. . They help achieve desired resource conditions and visitor experiences.

Definitions: *Components of acceptable limits of change, such as planning zones, planning prescriptions (development footprint and primary functions), design guidelines, and the concept of possible projects are all defined and described in Chapter 1, Purpose and Need.*

footprints. Figures 6 (a-b) through 13 (a-b) compare all three alternatives, by location, using buildable planning zone maps, planning prescriptions tables and design standards. The Maps 7 through 9 show Alternative C within the greater context of the Tower-Roosevelt area. Possible projects in the Tower-Roosevelt area, represented in Alternative C, are shown in Figures 6(a-b) through 13(a-b) and in Table 3 (Comparison of Development Footprint and Possible Projects for Each Alternative). The methodology used to calculate development footprints associated with possible projects is described in Chapter 1. The three planning components ensure that desired conditions for resources and visitor experience are achieved, with a low level of change in visitor services, facilities, and utilities to meet future needs. The buildable planning zones, planning prescriptions, design standards, and possible projects proposed in Alternative C allow a more comprehensive assessment of cumulative impacts over the long term at the Tower Roosevelt area than in Alternative A, No Action. Impacts associated with the application of planning components and possible projects to locations within the Tower-Roosevelt area have been assessed in Chapter 4, Environmental Consequences.

For the purposes of the plan, the Tower-Roosevelt area has been divided into eight separate locations where facilities are clustered: Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, Tower Administrative, Tower Junction, Tower Fall Trailhead, Tower Fall Campground, and Yancey's Hole locations. These locations are described in Chapter 1, Purpose and Need.

The following discussion describes Alternative C: Low Level of Change, for each of these locations. Figures 6 (a-b) through 13 (a-b) and the Maps 7 through 9 depict Alternative C on a map for each location; comparing it with alternatives A and B. These comparisons are organized by the three components of acceptable limits of change.

Roosevelt Lodge Location

The Roosevelt Lodge would continue to provide rustic ranch-style lodging and dining.

Buildable Planning Zones: This location is zoned in three ways; Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 6a and the Maps 7 through 9 illustrate the size and location of these zones. Since this is a historic district, the Buildable Historic Zone would be designated for those portions of the Roosevelt Lodge Historic District where facility changes may occur while still preserving the historic character of the district. It is shown as smaller than in Alternative B; similar to existing conditions. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails or underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery or historic viewsheds. The access roads into the Roosevelt Lodge are shown as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this contributing feature within the Roosevelt Lodge Historic District. The Buildable Natural and Buildable Circulation Zones are essentially the same for alternatives B and C.

Planning prescriptions: Planning prescriptions for the Roosevelt Lodge location are illustrated in Figure 6b. The existing development footprint for buildings at the Roosevelt Lodge Location is 62,967 square feet. Within the Buildable Historic Zone at this location, the maximum net gain in development footprint is 650 square feet; 1 1% net gain that can accommodate fewer possible projects than Alternative B such as employee restrooms, and a shower house. There is no net gain in development footprint for paved or unpaved parking. This alternative allows a smaller maximum change in development footprint

than in Alternative C, since the buildable planning zone is similar to existing conditions. If buildings or paved parking-areas are removed (in accordance to Section 106 of the National Historic Preservation Act), they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, “concession visitor facilities and operations related to dining and lodging” would be assigned to achieve the desired condition of preserving this visitor service and historical function; same as in Alternative B. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either alternative. The primary function for this zone is “access road” in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, “trails and underground utilities” for both action alternatives.

Design standards, illustrated in Figure 6b, are the same for Alternatives B and C. Within the Buildable Historic Zone, design standards are tailored to preserve buildings, features and patterns that contribute to the significance and character of this historic district. The lodge and surrounding cabin clusters are all oriented around a meadow. The lodge would remain the dominant focal point in both size and location. It has an existing development footprint of 2,000 square feet (front section). Additional buildings would follow existing historic building cluster arrangements. Any changes would be compatible with the appearance, size, and layout of contributing buildings within the district. The maximum size for any single building that may be introduced within this zone is 650 square feet; which is the average size of existing shower-houses within the cluster of smaller cabins in the district. Design standards for changes to parking areas are also included in this zone. These standards are based on the Historic Structures Report (1993) and the Cultural Landscape Inventory (2007). Chapter 3, Affected Environment contains additional descriptions of these contributing features and patterns. Under the Buildable Circulation Zone, materials, scale and design of the historic access road should be preserved. Under the Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural resource impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is within the Roosevelt Lodge Historic District. The Roosevelt Lodge Historic Structures Report (1993) and the Roosevelt Lodge Historic District Cultural Landscape Inventory (2007) outline contributing features and patterns. The secluded nature of this complex is dependent upon trees and a ridge that screen it from the road. The view from the lodge porch is eligible as a contributing feature within the district. Two cultural resource sites are shown within the historic district boundary. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the northwestern and southeastern corner of the district, are considered resources that may require additional compliance. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1 and DO 77-2 law and policy.

Roosevelt Corrals Location

The Roosevelt Corral location would continue to offer visitor opportunities associated with traditional horse use.

Buildable Planning Zones: This location is zoned in three ways; Buildable Development, Buildable Natural, and Buildable Circulation Zones. Figures 7a and the Maps 7 through 9 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes could take place without unacceptable impacts to resources. Figure 7a illustrates that this zone is smaller than in Alternative B; allowing a smaller expansion of development

beyond existing conditions to the southeast. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails or underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above ground obstructions to the natural scenery. Roads are zoned as Circulation, which designated certain planning prescriptions and design standards. The Natural and Circulations Zones are essentially the same for Alternatives B and C.

Planning prescriptions: Planning prescriptions for the Roosevelt Corrals are shown in Figure 7b.

Within the Buildable Development Zone at this location, the existing development footprint for buildings is 6,671 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 1,200 square feet (an 18% net gain) and no-net gain in development footprint for paved or unpaved parking; which can accommodate possible projects such as replacement of the existing saddle barn, construction of a new shade shelter, and improvement of the parking area. If buildings or parking-areas are removed, they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, “concession visitor facilities and operational facilities related to traditional horse use,” would be assigned to this zone to preserve the desired condition for this recreational opportunity. Within the Buildable Circulation Zone, no net gain in development footprint is proposed. “Access road” is assigned as the primary function. Within the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, “trails and underground utilities.” Planning prescriptions for the Buildable Natural and Buildable Circulation Zones are the same for both action alternatives.

Design standards: Design standards, illustrated in Figure 7b, are the same for alternatives B and C.

Within the Buildable Development Zone, they are tailored toward maintaining the “western ranch” style and character of this location. Although buildings are rustic, they are plain and modest in size and character; similar to a western dude ranch. With the goal of keeping the Roosevelt Lodge as the dominant building in the general area (building footprint is 2,000 square feet for front portion); corral buildings should remain similar to their existing size. Rather than using one large new building in this location, building mass should be broken up into smaller, attached units to subordinate it into the landscape. In order to preserve the historic vista, buildings within the Roosevelt Corral location should not be visible from the Roosevelt Lodge porch or be located immediately adjacent to the lodge access road. Since the Roosevelt Corral location is adjacent to the Grand Loop Road Historic District, buildings and structures should be screened from the road using a vegetated setback. Within the Circulation and Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic District and Roosevelt Lodge Historic District. Therefore the Roosevelt Lodge Historic Structures Report (1993) and the Roosevelt Lodge Historic District Cultural Landscape Inventory (2007) outline contributing features and patterns that may be affected by development within the Roosevelt Corral location. This location is visible from many points within Pleasant Valley. A cultural resource site is shown the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the northeastern and southwestern corner of the location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2.

Tower Ranger Station Location

The Tower Ranger Station location would continue to provide NPS visitor and administrative services in the historic Tower Junction Ranger Station.

Buildable Planning Zones: This location is zoned in three ways; Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 8a and the Maps 7 through 9 illustrate the size and location of these zones. Since this is a historic district, the Buildable Historic Zone would be designated for those portions of the Tower Junction Ranger Station Historic District where facility changes may occur while still preserving the historic character of the district. It is shown as smaller than in Alternative B and similar to existing conditions. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utilities that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery or historic viewsheds. The access road into the Tower Ranger Station location is shown as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this contributing feature within the historic district. The Buildable Natural and Buildable Circulation zones are essentially the same for alternatives B and C.

Planning prescriptions: Planning prescriptions for the Tower Ranger Station location are illustrated in Figure 8b. Within the Buildable Historic Zone at this location, the existing development footprint for buildings is 3,878 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 500 square feet; a 13% net gain. There are no possible projects examined for this area under this alternative. There is no net gain in development footprint for paved or unpaved parking. This alternative has a smaller maximum change in development footprint than in Alternative B. If buildings, roads, or paved parking areas are removed (in accordance to Section 106 of the National Historic Preservation Act), they can be replaced by a similar sized facility without a net gain in development footprint; allowing some additional flexibility. The primary function, "NPS administration and visitor facilities" would be assigned to this location, which is the same in Alternative B. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either action alternative. The primary function is "access road" in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities," for both Alternatives B and C.

Design standards: Design standards for the Tower Ranger Station location are illustrated in Figure 8b. They are the same for Alternatives B and C. Within the Buildable Historic Zone, design standards are tailored to preserve buildings, features and patterns that contribute to the significance and character of this historic district. The ranger residence (former ranger station) would remain the dominant focal point in both size and location; presiding over the road and Pleasant Valley. The maximum size for any one (new or additional) building is up to 1-1/2 stories high and 1,200 square feet; which maintains the ranger station (2400 square feet) as the dominant building amongst smaller buildings. Any changes and additional buildings would be compatible with the appearance, size, and layout of the district. Design standards for changes to parking are also included in this zone. They preserve the character of open space around the ranger station, and the character of the narrow access road (part of the Buildable Circulation Zone) into the complex. These standards are based on the Tower Junction Ranger Station Historic District Cultural Landscape Inventory (2007). Chapter 3, Affected Environment contains additional descriptions of these contributing features and patterns. Within the Buildable Circulation Zone, design standards address materials, scale, and design that would preserve the historic access road. Under the Buildable Natural

Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural resources impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural survey maps (Appendix B) show that this location is within the Tower Junction Ranger Station historic district, and is adjacent to the Grand Loop Road Historic District. The Tower Junction Ranger Station Historic District Cultural Landscape Inventory (2007) outlines contributing features and patterns. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands and waters of the U.S. are found within this location. They are considered resources that may require additional compliance and are to be avoided. If avoidance is not possible, impacts would be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. This location is visible from many points within Pleasant Valley.

Tower Administrative Location

The Tower Administrative location would continue to be used as the base for administrative and maintenance activities.

Buildable Planning Zones: This location is zoned in four ways; Buildable Administrative, Buildable Historic, Buildable Natural, and Buildable Circulation Zones. Figures 9a and the Maps 7 through 9 illustrate the size and location of these zones. Part of this location is within the Tower Junction Ranger Station Historic District. Therefore, the northern portion of this location is zoned Historic for those portions of the where facility changes may occur while still preserving the historic character of the district. This zone is the same in Alternative B. The Buildable Administrative Zone would be designated for those portions of this location where resources that may require additional compliance and historic districts are not present. Figure 9a illustrates that this zone is smaller than in Alternative B and similar to existing conditions. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery. The access road is zoned as Circulation, which designates certain planning prescriptions and design standards. The Buildable Natural and Buildable Circulation zones are essentially the same for Alternatives B and C.

Planning Prescriptions: Planning prescriptions for the Tower Administrative location are shown in Figure 9b. Within the Buildable Administrative Zone at this location, the existing development footprint for buildings is 17,322 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 3,500 square feet; a 20% net gain that can accommodate possible projects such as replacement of trailer housing and an emergency services building. There is no net gain to development footprint for paved or unpaved parking within this zone. If buildings or paved parking areas are removed, they can be replaced by similar-sized facilities without a net gain in development footprint; allowing some additional flexibility. The primary function, "NPS administrative and operational facilities" is assigned to both the Administrative and Buildable Historic Zones at this location for both action alternatives. Within the Buildable Historic Zone, there is no net gain proposed for development footprint. Within the Buildable Circulation Zone, no net gain in development footprint and the primary function, "access road" is proposed. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities." Planning prescriptions for the Buildable Natural Zone and Buildable Circulation Zones are the same for both Alternatives B and C.

Design standards: Design standards are illustrated in Figure 9b, and are the same for alternatives B and C. Since part of this location is within the Tower Junction Ranger Station Historic District, design standards for both the Historic and the adjacent Buildable Administrative Zones are meant to preserve contributing features and patterns of the historic district. Those portions of this location that are within the Buildable Historic Zone should remain historically compatible in materials, design, and scale. However, in the more flexible Buildable Administrative Zone, design standards allow for more flexibility in the materials, size, and scale of additional facilities. Here, buildings could be a maximum of two stories high; lower than the average surrounding tree canopy. The maximum building footprint would be up to 3,500 square feet, which is the size of the existing housing four-plex. Currently, part of this location can be seen from the Grand Loop Road historic district, and therefore screening this location from view of visitor use areas is important to achieving desired conditions for visual resources in the Tower-Roosevelt area.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is partially within the Tower Junction Ranger Station Historic District. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Rare plants, wetlands and waters of the U.S., shown in the south and eastern portions of this location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. Portions of this location are visible from the Roosevelt Lodge guest cabins and adjacent trails.

Tower Junction Location

The Tower Junction location would continue to provide visitor facilities and administrative support for retail functions. Additional visitor services, facilities, and utilities can be accommodated within this location under this alternative.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development, Buildable Natural, and Buildable Circulation zones. Figures 10a and the Maps 7 through 9 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes can take place without unacceptable impacts to resources. Figure 10a shows that this zone is smaller than in Alternative B; allowing an expansion of development to the southwest; just slightly beyond existing conditions. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utilities that do not exceed minor adverse impacts to natural and cultural, resources, and do not create any above-ground obstructions to the natural scenery. This zone is essentially the same in Alternatives B and C. The Grand Loop Road Historic District is zoned as Buildable Circulation Zone, which designates certain planning prescriptions and design standards to preserve this historic district.

Planning prescriptions: Planning prescriptions for the Tower Junction location are shown in Figure 10b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is 3,391 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 2,000 square feet; a 59% net gain. This would accommodate possible projects such as a commercial services building, a remodeled service station building, additional public restrooms, and a visitor contact station. The existing development footprint for paved parking is 32,301 square feet. The net change in development footprint for paved parking is a net gain of up to 15,000 square feet, or 46%. There will be no net gain in unpaved parking at this location. If buildings or paved parking areas are removed, they can be replaced by similar-sized facilities at no net gain in development footprint. This

allows some additional flexibility in design solutions for this area. The primary function, “concession visitor facilities and NPS visitor facilities” would be assigned to this zone, which is the same for Alternative B. Within the Buildable Circulation Zone, no net gain in development footprint is shown for either action alternative. The primary function is “access road” in both alternatives. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, “trails and underground utilities,” for both Alternatives B and C.

Design standards: Design standards, illustrated in Figure 10b, are the same for alternatives B and C. This location is visible from many directions within the Tower-Roosevelt area, due to the open terrain, and also visible from the Grand Loop Road Historic District. Therefore, the design standards are tailored toward preserving the scenery of the Tower-Roosevelt area and the historic district. Within the Buildable Development Zone, buildings and structures should be screened from the road using vegetation, a berm, and a 30-foot set-back. Rather than using one large new building in this location, building size should be reduced visually by using smaller, attached units at no larger than 2,000 square feet. The existing gas station (excluding the pump area) is 1300 square feet. Plantings would integrate the buildings into the landscape. Building height should remain no larger than 1-1/2 stories high (same as Ranger Station), which allows the buildings to be screened behind the most massive portions of trees that grow in this area; higher building would be visible behind the more thin tree-tops. Parking areas (and the reflective surfaces of vehicles) are hidden behind buildings to the extent possible, using the more visually-appealing architecture as a way to lessen impacts to the scenery. Within the Buildable Natural and Buildable Circulation Zones, design standards are meant to preserve the natural scenery and to lessen the visual, natural and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic. A cultural resource site is within the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Rare plants, shown in the northeastern and southwestern corner of the location, are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. The visual resources maps show this area as visible from many directions within the Tower-Roosevelt area.

Tower Fall Trailhead Location

The Tower Fall Trailhead location would continue to provide visitor services and facilities.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development, Buildable Natural, and Buildable Circulation Zones. Figures 11a and the Maps 7 through 9 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes will not result in unacceptable impacts to resources. Figure 11a shows that this zone is larger in Alternative C (toward the north) than in Alternative B due to the reduction of, rather than the removal of, the general store. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utilities that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above ground obstructions to the natural scenery. It is essentially the same for Alternative B. The Grand Loop Road and the parking area is zoned as Buildable Circulation Zone, which designates certain planning prescriptions and design standards that preserve this resource. It is shown as larger in Alternative C; similar to existing conditions.

Planning prescriptions: Planning prescriptions for the Tower Fall Trailhead are shown in Figure 11b. Within the Buildable Development Zone at this location, the existing development footprint for buildings is approximately 10,000 square feet. Under this alternative, there is a net reduction in buildings development footprint of up to 5,000 square feet (up to 50% reduction). This would be accomplished through the reduction of the general store; a smaller level of change than in Alternative B. The primary function “concession visitor facilities and NPS visitor facilities,” would be assigned to this zone. The existing development footprint for parking is 43,401 square feet. The proposed net gain in development footprint for paved parking is up to 16,000 square feet; a net gain of 37%. There will be no net gain in unpaved parking at this location. The primary function, “visitor roads and parking” would be assigned to this zone. This would be the same for Alternative B. A large portion of this location is zoned as Buildable Natural Zone, where there is an undetermined development footprint for the primary functions, “trails and underground utilities,” for both Alternatives B and C.

Design standards: Illustrated in Figure 11b, design standards are the same for both Alternative B and C at this location. Within the Buildable Development Zone, they are tailored toward preserving the natural setting and scenery and the adjacent Grand Loop Road Historic District. Facilities would be screened from the road using landforms and trees. Buildings would be blended into the landscape by using plantings and by breaking up one large building-mass into smaller, attached units. The existing general store has a footprint of 8,253 square feet. Within the Buildable Circulation Zone, design standards are meant to preserve the Grand Loop Road Historic District. Under the Buildable Natural Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to the installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location is adjacent to the Grand Loop Road Historic District and to some cultural resource sites. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. This location is also visible from the road. There are some limiting factors related to soils in this location. The septic system cannot take any additional load in this location.

Tower Fall Campground Location

The Tower Fall Campground location would continue to offer a 32-site campground for visitors and provide housing in the adjacent employee housing area.

Buildable Planning Zones: This location is zoned in three ways: Buildable Development Zone, Buildable Natural Zone, and Buildable Circulation Zone. Figures 12a and the Maps 7 through 9 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes may take place without unacceptable impacts to resources. Figure 12a shows that this zone is smaller in Alternative C than in B and similar to existing conditions within the employee dormitory area. A large portion of this location is also zoned as Buildable Natural Zone, which accommodates trails and underground utility changes that do not exceed a minor adverse impact for natural and cultural resources, and do not create any above-ground obstructions to the natural scenery. This zone is larger in Alternative C than in B. The campground road is zoned as Buildable Circulation Zone, which is the same for Alternative B.

Planning Prescriptions: Planning prescriptions for the Tower Campground location are shown in Figure 12b. Within the Buildable Development Zone at this location, the existing development footprint for

buildings is 8,044 square feet. Under this alternative, the maximum net gain in development footprint for buildings is 200 square feet (2%) which can accommodate possible projects such a vault toilet. There will be no net gain in paved or unpaved parking at this location. If buildings or paved parking areas are replaced with similar sized facilities, there would be no net gain in development footprint; allowing additional flexibility. The sewer-system capacity is a limiting factor within this location; no additional loads on sewer can be accommodated. The primary function, "visitor and operational facilities" is assigned to this zone. Within the Buildable Circulation Zone, no net gain in development footprint is proposed. The primary function of this zone is for visitor access. Under the Buildable Natural Zone, there is an undetermined development footprint for the primary functions, "trails and underground utilities." Planning prescriptions for the Buildable Natural Zone and the Buildable Circulation Zones are the same for Alternatives B and C.

Design Standards: Design standards, illustrated in Figure 12b, are the same for alternatives B and C. Within the Buildable Development Zone, they are tailored toward preserving the natural scenery for visitors using this campground; blending facilities into the landscape. A single building should be no larger than 1,200 square feet and 1 story in height (existing dorm size). Under the Buildable Natural Zone and the Buildable Circulation Zone, design standards are meant to preserve the natural scenery and to lessen the visual, natural, and cultural impacts due to installation of underground utilities.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that there are some cultural resources sites within this location. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. The employee housing area is visible from the public campground. The septic system cannot take any additional load in this location.

Yancey's Hole Location

The western style cookout would continue and the facilities at the Yancey's Hole location that support this operation would remain.

Buildable Planning Zones: This location is zoned in two ways: Development and Buildable Natural Zones. Figures 13a and the Maps 7 through 9 illustrate the size and location of these zones. The Buildable Development Zone would be designated for those portions of this location where facility changes may take place without unacceptable impacts to resources. This cookout site was previously constructed within a cultural resource site in the 1950s. Therefore the Buildable Development Zone is designated tightly around the existing development with no expansion (smaller than in Alternative B). The Buildable Natural Zone is shown where trails that do not exceed a minor adverse impact are accommodated (same for Alternative B).

Planning Prescriptions: Figure 13b illustrates planning prescriptions for this location. Within the Buildable Development Zone, the existing development footprint for buildings is 2,732 square feet. Under this alternative, there is no net gain in development footprint for buildings. The primary function is "concession western cookout facilities." No net gain in development footprint for buildings or unpaved parking is accommodated. However, if facilities such as trails, picnic or serving shelters are removed, they can be replaced within this zone with no net gain in development footprint. Planning prescriptions for the Buildable Natural Zone is the same for Alternatives B and C.

Design Standards: Design standards, illustrated in Figures 13b and 14, are the same for alternatives B and C. They are intended to preserve the wilderness character for those who visit this location by

horseback or wagon. Within the Buildable Development Zone, facilities should blend into the surrounding landscape. The scale, materials, and design of these facilities should remain small, modest, and rustic; with a single building footprint at no larger than 1,800 square feet, which is the size of the existing picnic shelter. Avoid excavation to preserve cultural resource sites. Design standards within the Buildable Natural Zone are meant to preserve the narrow, winding character of the trails; preserving natural and cultural resources.

Surveyed Resources and Additional Compliance: Natural and cultural resource survey maps (Appendix B) show that this location contains a cultural resource site within and around the main body of the Buildable Development Zone. Therefore, projects that meet the components of acceptable limits of change would require additional compliance with Section 106 of the National Historic Preservation Act. Wetlands, shown in the southern portion of the location, and the creeks flowing through the location are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2. This location is very visible from adjacent trails and roads.

The following Figures and maps are reference throughout the description of the alternatives, above. They illustrate the alternatives on maps of the Tower-Roosevelt area and provide an easy comparison of the three planning components for all three alternatives.

EVALUATING FUTURE PROJECTS

The final step in the comprehensive planning process is to apply the acceptable limits of change to future projects. The comprehensive plan provides a framework for decision-making that NPS staff, managers, and partners would use when developing, evaluating, and then selecting project proposals. There is a project application form in Appendix A. In order to determine if a project proposal is acceptable for the Tower-Roosevelt area, NPS staff and partners would:

1. Determine if the project is contained within the list of possible projects for that location.
2. Determine if the project proposal achieves or supports desired conditions for natural, cultural, and visual resources and visitor experience.
3. Refer to the planning components for each location to:
 - a. Determine which buildable planning zone(s) the project would take place within.
 - b. Refer to the Planning Prescriptions. Determine if the function corresponds to the acceptable functions established by the comprehensive plan. Identify how much of the acceptable net change in development footprint would be utilized by this project and how much remains.
 - c. Refer to the Design Standards for that location for any additional guidance.
4. Compare the project proposal to appropriate maps and figures for the location showing all natural, cultural, and visual resource maps (Appendix B) and buildable planning zones. Even for projects that meet the components of acceptable limits of change, additional compliance with Section 106 of the National Historic Preservation Act would be necessary if there are any cultural resources and historic properties within or adjacent to the project site. Rare plants, wetlands and

waters of the U.S. are considered resources that may require additional compliance that are to be avoided. In cases where avoidance is not possible, impacts must be mitigated according to the Clean Water Act, DO 77-1, and DO 77-2.

5. Submit the project proposal with appropriate documentation (see form in Appendix A) to the comprehensive planning staff for the superintendent's approval.

Any future projects (selected from the list of possible projects) that fall within the scope of the buildable planning zones, planning prescriptions, and design standards would be regarded as within the acceptable limits of change and may be considered for the park approval process for construction within the Tower-Roosevelt area. Projects that fall outside the list of possible projects and/or the scope of the buildable planning zones, planning prescriptions, or design standards are likely to exceed the environmental effects of the proposed alternatives, would be considered beyond the acceptable limits of change, and would be rejected. In exceptional cases, a rejected proposal may bring forth new information and demonstrate a compelling need for consideration. In these extraordinary cases, additional analysis that follows the National Environmental Policy Act would be required.

All projects that have the potential to affect wetlands, waters of the U.S., rare plants, and/or cultural resources must go through additional steps to comply with applicable laws and policies, even if they are within the scope of this plan. This is identified in the Project Evaluation Process.

ALTERNATIVES CONSIDERED AND DISMISSED

Two alternatives were considered for inclusion in the Tower-Roosevelt Area Comprehensive Plan, but were dismissed from further analysis for the following reasons.

No Further Development Alternative: As another version of the “No Action” alternative, an alternative that examined no further change to visitor services, facilities, and utilities was considered for inclusion in the TRCP/EA. Seven objectives of the TRCP/EA are listed in Chapter 1. The following five objectives would not be met by this alternative:

- Preserve and protect park natural, cultural, and visual resources and visitor experience by guiding the location, function, size, and appearance of visitor services, facilities, and utilities.
- Ensure that the desired conditions for natural, cultural, and visual resources and visitor experiences are defined and achieved.
- Use sustainable designs, methods, building practices, and technologies to the extent possible.
- Identify opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions for resources and visitor experience; reinvesting resources to improve the condition of the park's most important assets.
- Guide decisions to provide high quality visitor services; concentrating efforts on core services at cores locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.

In order to continue to support those who visit this portion of the park with the existing range of visitor services in a way that preserves and even improves natural, cultural, and visual resources, future changes to development are likely. There are historic facilities, such as the Roosevelt Lodge and Tower Ranger Station, which require periodic rehabilitation to insure their continued use and preservation. A number of facilities that support desired visitor experience are aging and may pose human health and safety hazards, are poorly constructed, and/or are non-sustainable. These facilities require modification. The Tower Falls Trailhead general store was proposed to be removed in a previous park plan. Many operational facilities, such as an emergency services building, employee housing, and employee bathrooms are needed to directly or indirectly support visitors in this portion of the park.

High Level of Change Alternative: An alternative that proposed a *high level of change* was considered for inclusion in the TRCP/EA. This alternative included the following elements, some of which would likely lead to potential unacceptable impacts:

- Remove facilities at the Yancey's Hole location and reduce horse operations
- Year-round operation for visitor services
- Change Roosevelt Lodge function to educational use

Yancey's Hole: The first development within the Tower-Roosevelt area, John Yancey built a hotel and mail station here in Pleasant Valley to serve travelers on the stage road to Cooke City in 1884. The development remained in operation through 1906, when the hotel burned to the ground. The foundations of what were once the Yancey's hotel and saloon and a cultural resource site were uncovered during the 2004 archeological survey. Constructed on the edge between forest and meadow where a small creek flows into Pleasant Valley, those who placed the western cookout site in this location in the 1950s had no knowledge of their impacts to a cultural resource site, or to the forested wetland. Under the High Level of Change alternative, the cookout at the Yancey's Hole location would no longer be offered to visitors, the facilities would be removed, and the Roosevelt corral operation would be reduced in size. The planning process revealed that traditional horse use is a fundamental value that supports the significance of the Tower-Roosevelt area; particularly the historic horse use associated with the Roosevelt Lodge. This cookout site offers one of very few opportunities where those visitors who are unable to hike into the backcountry can experience a wilderness-type setting that is away from developed areas. Almost a third of respondents who participated in a 2006 survey pursued trail rides, with a majority stating they enjoyed this activity. It is also supported in the 1974 Master Plan. Although the cookout site overlies natural and cultural resources, the site has already been disturbed and the impact has already occurred. Impacts resulting from continued use were not considered unacceptable. Moving the facility to another location would likely further impact the natural, cultural, and visual resources in the area, as most of the adjacent areas are likely to contain resources that may require additional compliance. Therefore, this element of this alternative was from further consideration.

Provide Year-Round Operations: Year-round services were considered for a visitor contact station, retail operations, and other existing concession-operated services such as the Roosevelt Lodge, cabins, and corral operations. Converting these facilities to year-round use would require extensive and expensive improvements to winterize utility systems and buildings that were not designed or constructed for winter use. Year-round operations would require a seasonal expansion in maintenance and emergency

operations and support infrastructure. Finally, there were no surveys or analyses available to fully determine the impacts of introducing winter services to this area. Therefore this alternative was eliminated from further consideration.

Covert Lodge to Educational Use: Utilizing the lodge as an educational facility was considered as a part of this alternative. However, eliminating the Roosevelt Lodge dining and lodging function would remove a fundamental value that supports the significance of the Tower-Roosevelt area. The lodging and dining facility is supported in the 1974 Master Plan. This alternative was therefore eliminated from further consideration.

MITIGATION MEASURES

The three planning components, (1) buildable planning zones, (2) planning prescriptions, and (3) design standards, are tools that preserve and protect fundamental resources and values and visitor experience while guiding future changes in development. Therefore, these planning components act as mitigation measures to minimize impacts to resources.

To further mitigate impacts that can potentially result during project implementation the following mitigation measures are common to all three TRCP/EA alternatives (A, B, and C):

To preserve park natural, cultural, and visual resources:

- Construction workers and supervisors would be informed about relevant park regulations and the importance of taking appropriate measures to minimize impacts to park resources.
- Construction workers and supervisors would be informed about special status species. If one of these species is discovered in a project area, contract provisions would require cessation of construction activities until park staff can assess the situation. The contract would be modified if necessary to protect the species.
- Construction activities would not be permitted in locations where archeological or paleontological resources are known to be present without the presence of an archeological monitor. If such resources are discovered during construction, the work would cease until park staff have consulted with the state historic preservation officer and the Advisory Council on Historic Preservation (§36 CFR 800.13, *Post-review Discoveries*). In the unlikely event that human remains are discovered, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- Contractors and subcontractors would be informed of the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties.
- The park vegetation guidelines including topsoil salvaging would be implemented in construction projects.
- All wetland and floodplains would be avoided or permitted and mitigated relevant to park and other agency requirements.

To minimize ground disturbance:

- Staging and stockpiling areas would be located in previously disturbed sites, away from visitor use areas to the extent possible, and returned to pre-construction conditions following construction.
- The minimum area needed for an approved construction activity would be delineated by construction tape, snow fencing, or similar material. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the identified construction zone.
- Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as the use of silt fences would be used to minimize the possibility of soil erosion or impacts from soil erosion.

To minimize impacts during construction:

- Construction zones would be identified and fenced prior to any construction activity. If previously undiscovered archeological resources are discovered during construction, work in the immediate vicinity of the discovery would cease until the resource could be identified and documented. An appropriate mitigation strategy developed in consultation with the Wyoming State Historic Preservation Office would be developed. Additional compliance beyond the scope of the EA would be necessary.
- If necessary, dust generated by construction activity would be controlled by spraying water from an approved source on the site.
- Contractors would regularly monitor and check construction equipment to identify and repair any petrochemical leaks.
- To reduce noise and emissions, construction equipment would not be permitted to idle for extended periods and construction workers would not be permitted to broadcast portable audio devices through speakers. The use of jake brakes would be minimized when transporting materials in large trucks.
- The timing of construction activities may be altered to minimize impacts on park visitors.

To restore disturbed areas

- All disturbed areas would be restored shortly after construction activities are completed.
- Revegetation and recontouring would be designed to minimize visual intrusions while replicating as nearly as possible pre-construction conditions.
- Revegetation efforts would strive to replicate the natural spacing, abundance, and diversity of the native plant community.

- Weed control methods would be implemented to prevent the introduction of non-native species.

THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s Section 101:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life’s amenities; and enhance the quality of renewable resources and approach the maximum attainable recycling of resources.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depleted resources.

Alternative A, the *No Action* alternative, would not meet the third criteria above as it reacts to individual proposals rather than planning for overall desired conditions for resources and visitor experience and evaluating impacts collectively. It would also not meet the final two criteria as it does not address renewable resources or recycling of resources. It is assumed that although the No Action addresses proposed projects on a case-by-case basis, the remaining criteria would be honored by the existing environmental analysis processes.

Although Alternative B, *Medium Level of Change*, provides the most opportunities for visitors through larger development footprints, larger buildable zones, and more possible projects, it does so without unacceptable impacts to resources and visitor experience. Therefore it meets the first four criteria above. It meets the last two criteria by addressing sustainability in the design standards, and also by encouraging the removal of buildings and pavement when possible. However, it does propose a 19% increase in building footprint and 29% increase in overall paved parking footprint, which is higher than in Alternative C.

Alternative C, *Low Level of Change*, is the environmentally preferred alternative because it best addresses these six evaluation factors. Alternative C provides for the construction of possible projects through buildable zones, development footprint without unacceptable impacts to resources and visitor experience. It does this through a 7% increase in building footprint and a 22% increase in paved parking footprint, which is less than what is proposed in Alternative B. Therefore it best meets the first 4 criteria above. Alternative C has less impact on health and human safety, visual quality, visitor use and experience and park operations than Alternative B. It meets the last two criteria by addressing

sustainability in the design standards, and also by encouraging the removal of buildings and pavement when possible.

No new information came from public scoping or consultation with other agencies to necessitate the development of any alternatives other than those evaluated in this document. The environmentally preferred alternative must preserve and protect the park's important cultural and natural resources; improve and make safer the work environment for visitors and staff; provide better visitor services without degradation of the environment or risk of health or safety; and through the use of sustainable design, enhance the quality of renewable resources.

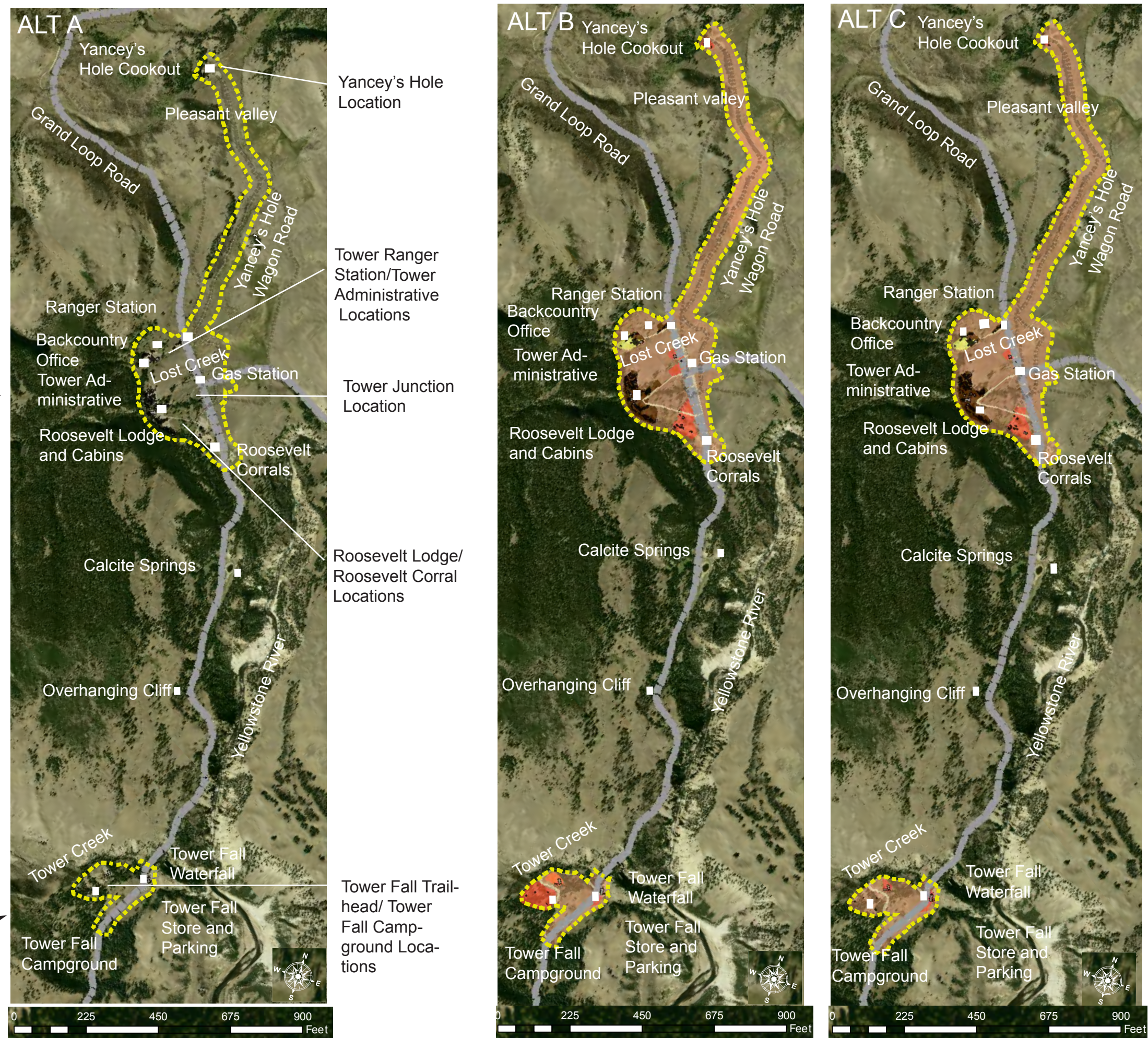
Figure 5: Tower-Roosevelt Alternatives Comparison

The Tower-Roosevelt Comprehensive Plan/EA compares three alternatives: a no action and two action alternatives. Alternative A -No Action, No Plan. Change is determined on a case-by-case basis. Alternative B presents a Medium Level of Change and Alternative C presents a Low Level of Change.



- Legend**
- Planning Boundary
 - Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

The yellow dashed line indicates the extent of the Planning Boundary.



Note: Larger, detailed maps of the Alternatives are found in Chapter 2, Maps 1-9.



Map 1

Legend

- Existing Building
- New Building
- Removed Building
- Buildings
- Contours
- Wagon Road
- Horse Trail
- Hiking Trail
- Rivers & Streams
- Roads

**No Planning
Zones Apply
TOWER/ROOSEVELT
LOCATIONS**

ALTERNATIVE A



Legend

Buildings

Trails

Wagon Road

Horse Trail

Hiking Trail

Principal Park Roads

Secondary Roads

Rivers & Streams

Map 2

**No Planning
Zones Apply
TOWER FALL
LOCATIONS
ALTERNATIVE A**



- Legend**
- Buildings
 - Trails**
 - Wagon Road
 - Horse Trail
 - Hiking Trail
 - Primary Roads
 - Rivers & Streams

Map 3

**No Planning
Zones Apply
YANCEY'S HOLE
LOCATION
ALTERNATIVE A**



Map 4

Legend

- Planning Boundary
- Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Tower Ranger
Station Location

Tower Junction
Location

Tower Administrative
Location

Roosevelt Corral
Location

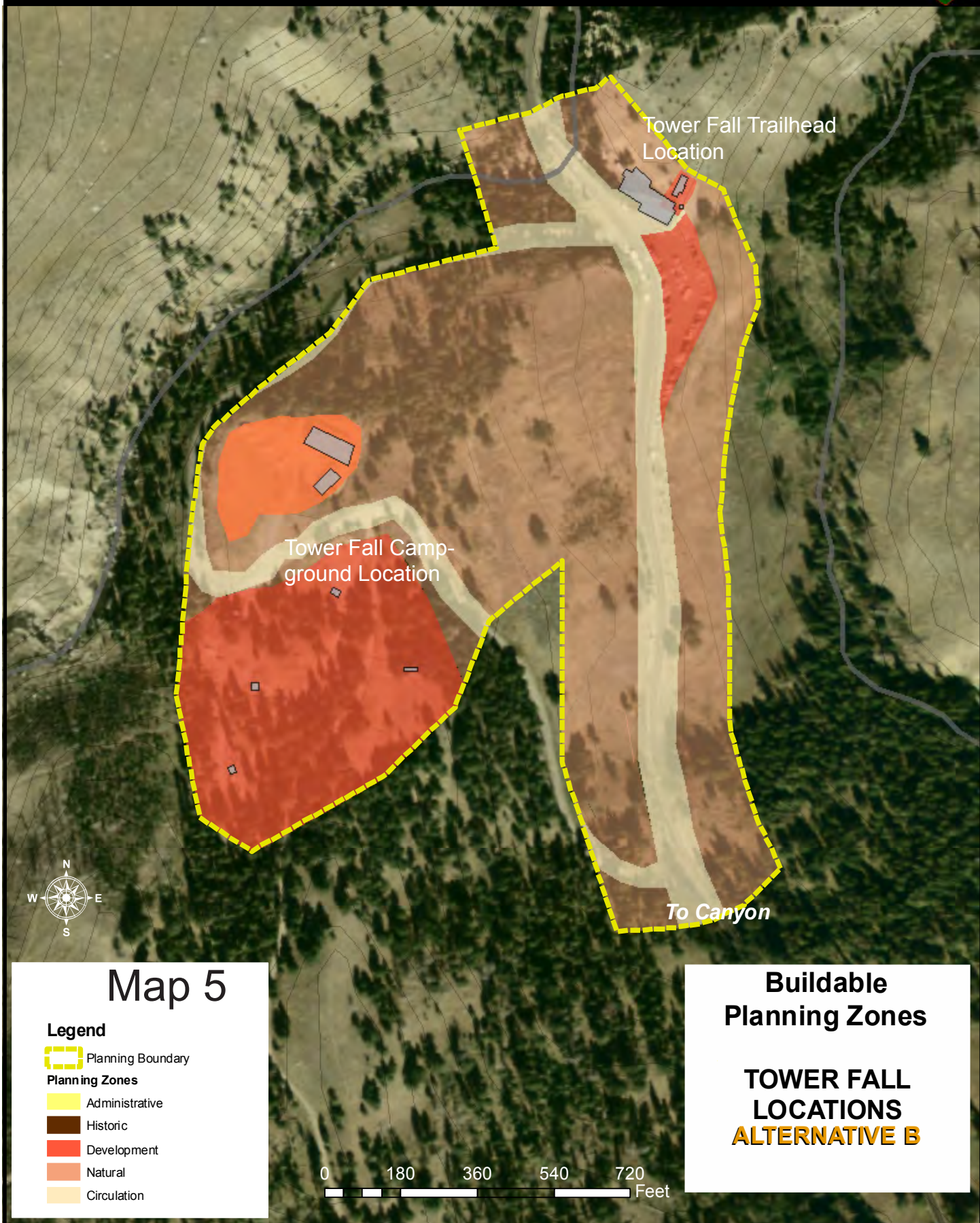
Roosevelt Lodge
Location

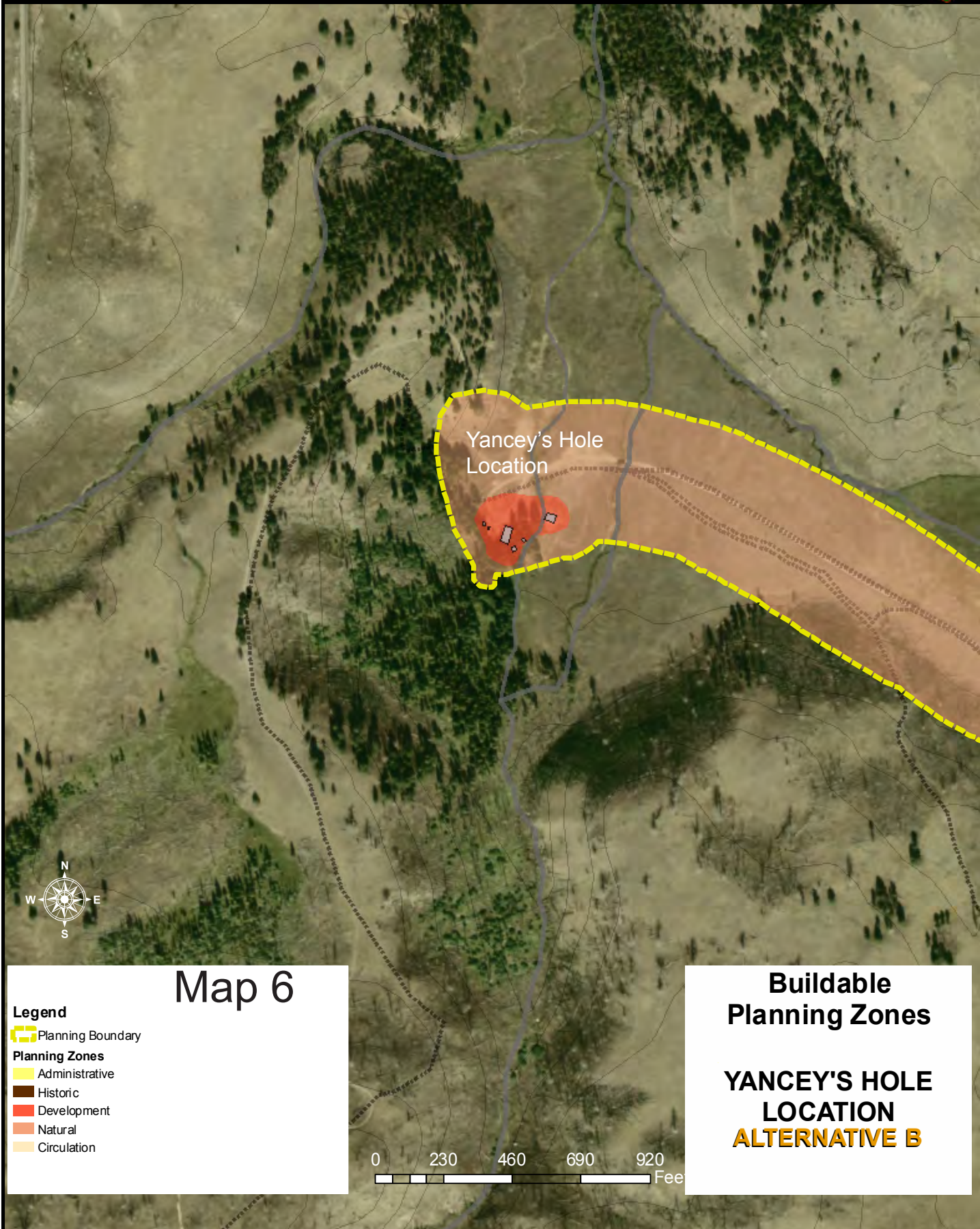
**Buildable Planning
Zones
TOWER/ROOSEVELT
LOCATIONS**

ALTERNATIVE B



0 225 450 675 900 Feet





Map 6

Legend

Planning Boundary

Planning Zones

Administrative

Historic

Development

Natural

Circulation

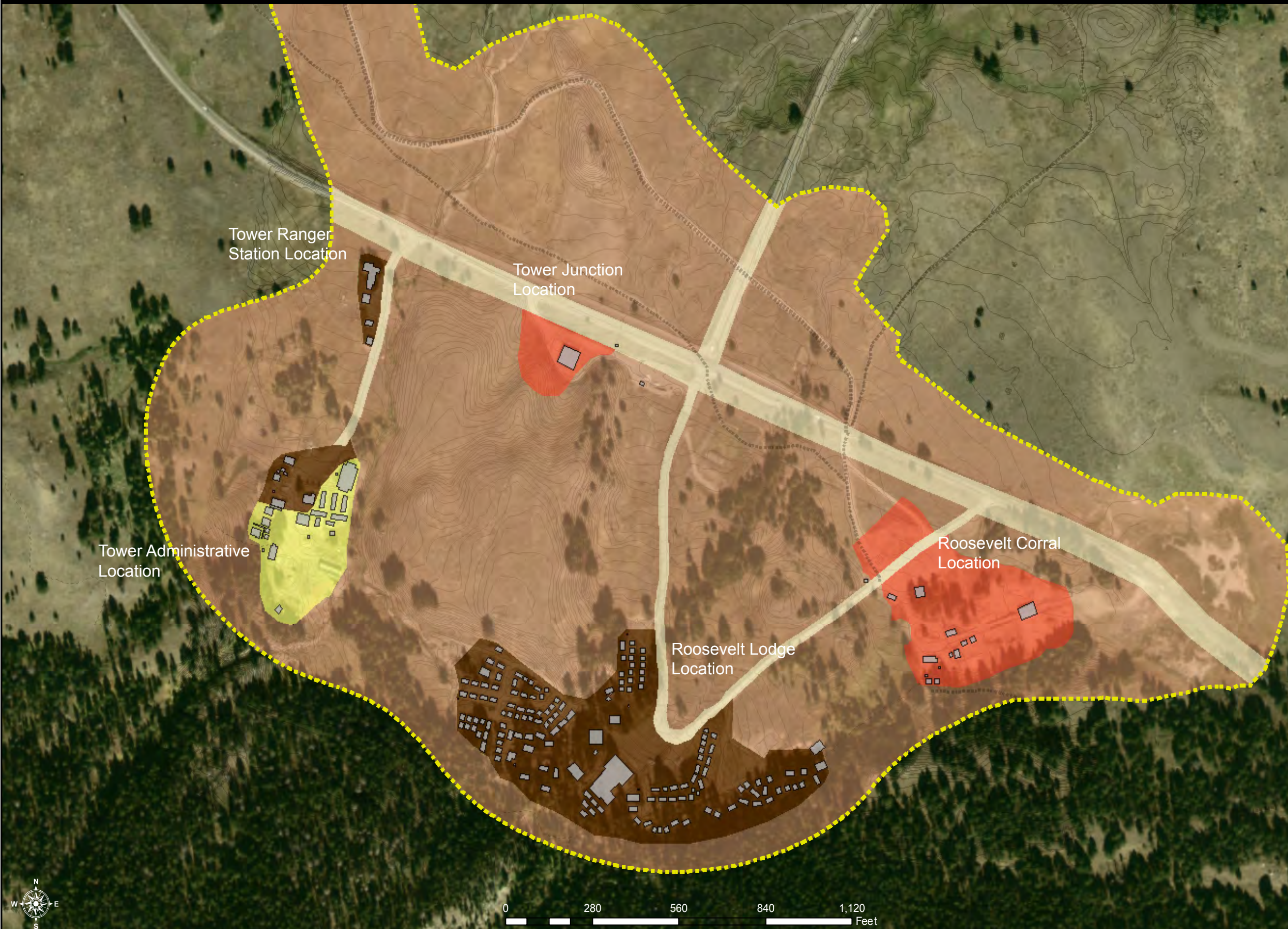
Buildable
Planning Zones

YANCEY'S HOLE
LOCATION
ALTERNATIVE B



Map 7

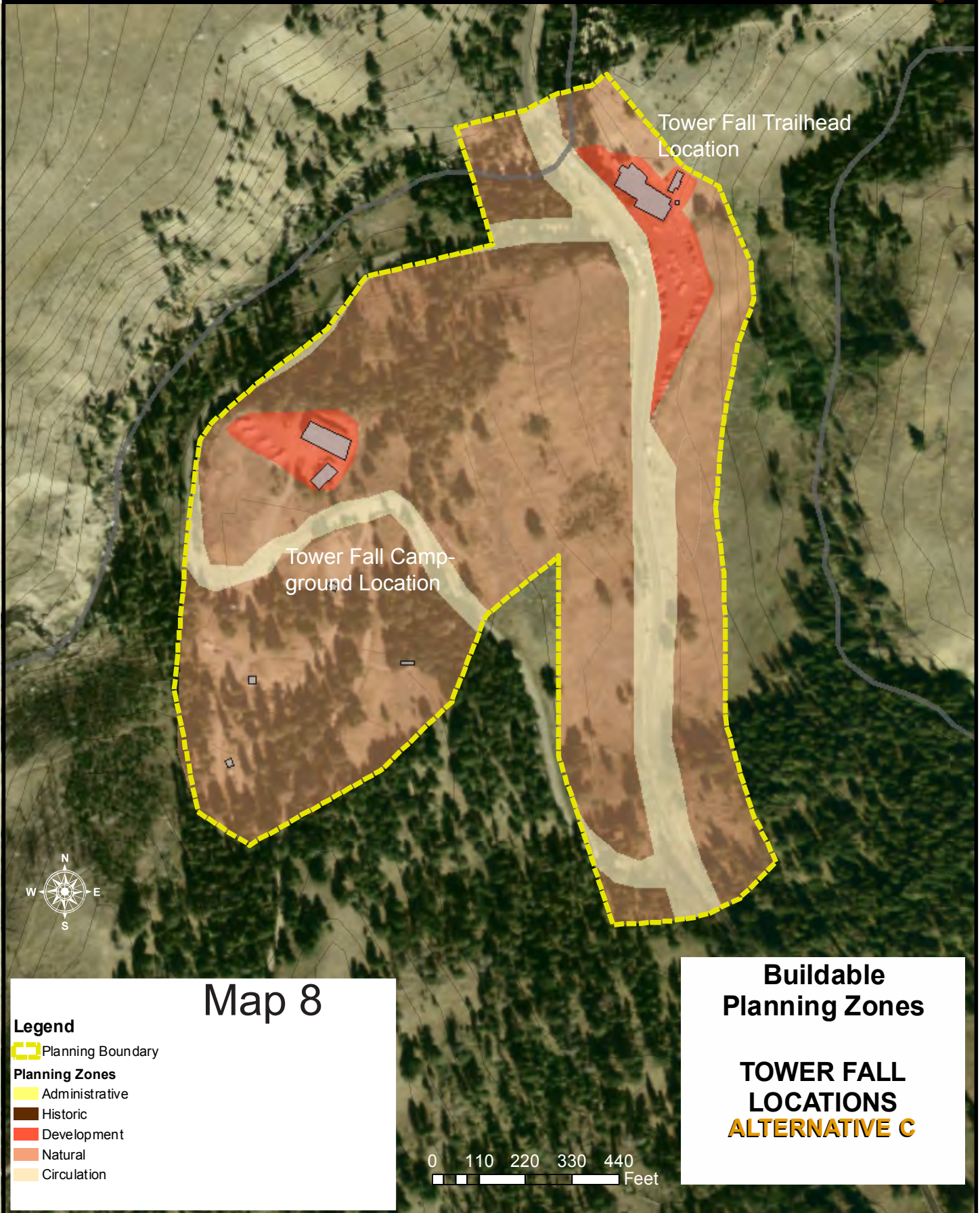
- Legend**
- Planning Boundary
 - Planning Zones**
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

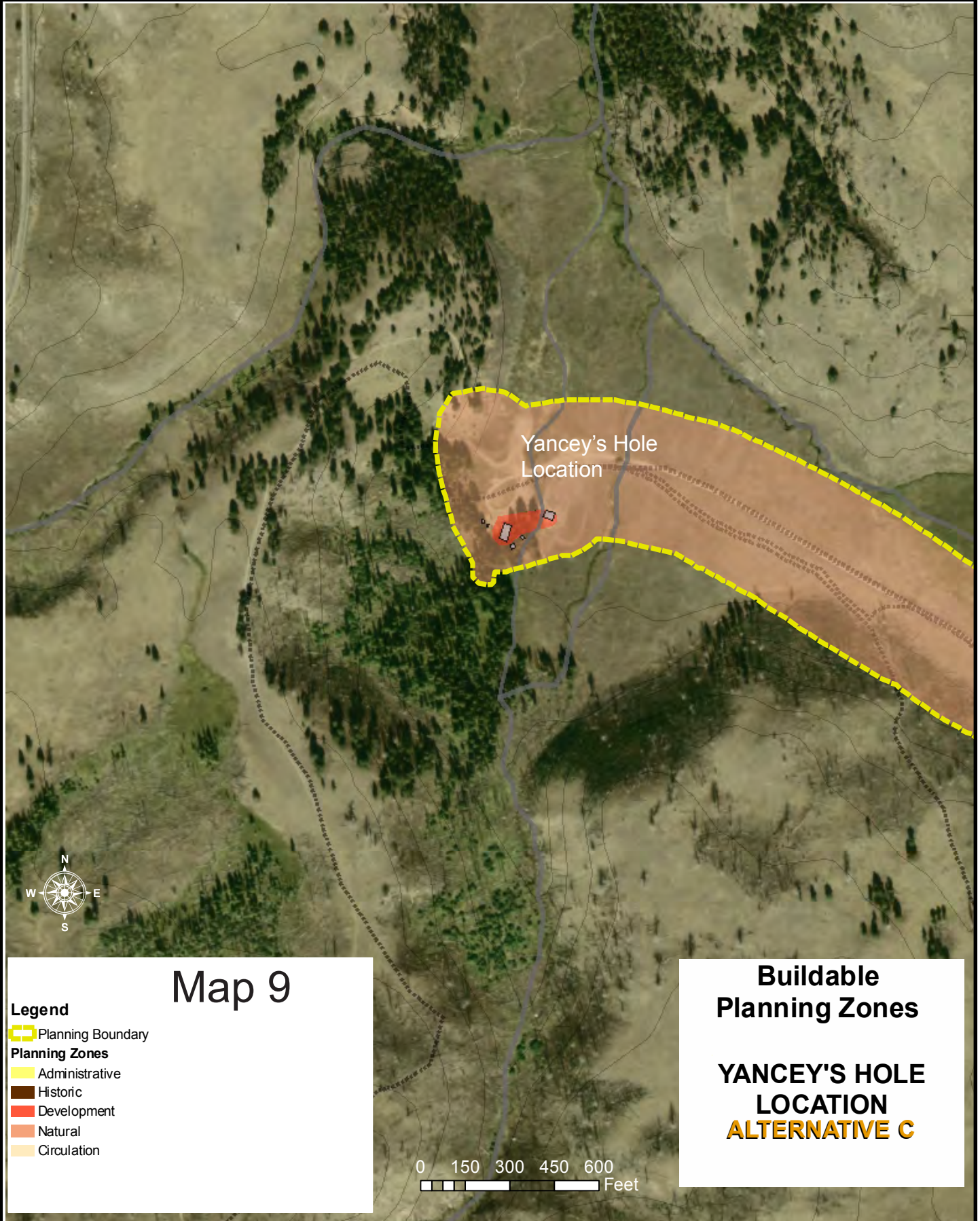


**Buildable Planning
Zones**

**TOWER/ROOSEVELT
LOCATIONS**

ALTERNATIVE C





Roosevelt Lodge Location

1 Planning Zones

Figure 6a



Alternative A:
(top) No Action, no plan-change is determined on a case by case basis

Alternative B:
(middle) **Medium Level of Change-**Buildable Historic planning zone shows areas where an increased development footprint can take place within the historic district.

Alternative C:
(bottom) **Low Level of Change-**Buildable Historic planning zone shows a smaller development footprint that is similar to existing conditions.

Roosevelt Lodge Location
Alternatives Comparison:
Acceptable Limits of Change

2 Planning Prescriptions

3 Design Standards

Design standards are applied to both Alternative B and C.

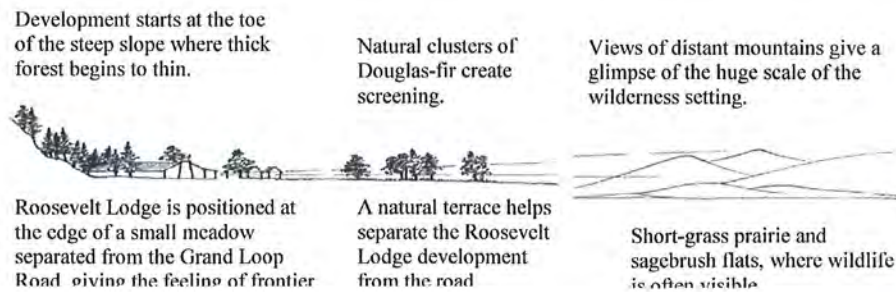


Figure 6b

Zone	Alternative A No Action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions
Buildable Historic Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 7200 s.f. net gain for buildings*; Not to exceed 10,000 s.f. net gain for parking*	Concession visitor facilities related to lodging/dining.	Not to exceed 650 s.f. net gain for new buildings* Not to exceed current s.f. for parking improvement	Concession visitor facilities related to lodging/dining.
				Concession operational facilities related to lodging/dining.		Concession operational facilities related to lodging/dining.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	No net gain.	Access road circulation.	No net gain.	Access road circulation.
Buildable Natural Zone	Not defined in this alternative	Evaluated on a case-by-case basis	Expansion.	Underground utilities.	Replacement in kind.	Underground utilities.
				Trails, boardwalks		Trails, boardwalks

*NOTE: This Plan/EA provides for reduction, replacement, and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.

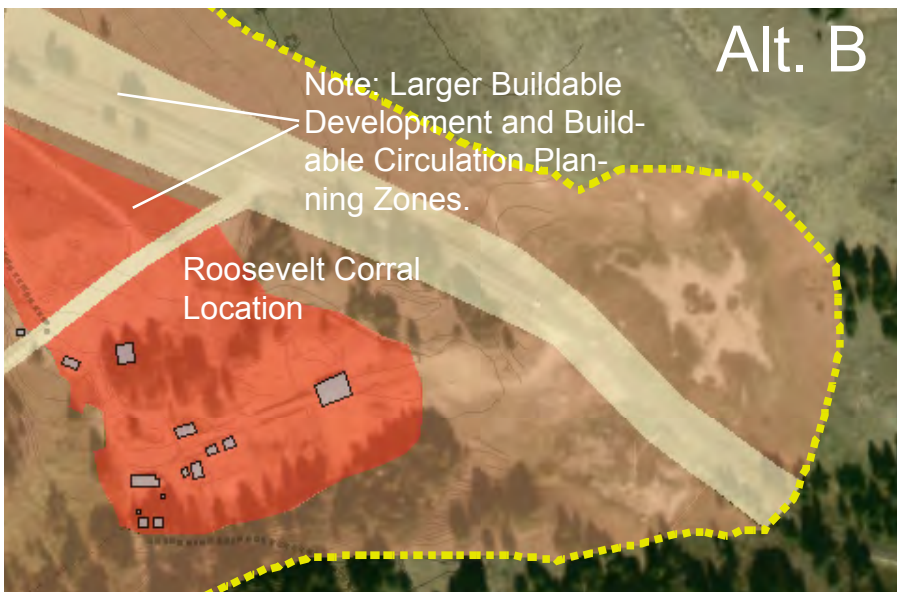
Buildable Historic Zone	Materials	Compatible rustic architecture; fire resistant, natural materials. Reflect character of historic buildings and landscape. Landscape features include: surfaces that appear unpaved; curbing that uses small logs; simple, small-scale features in rustic architectural style. Use sustainable design methods, materials and technology where possible.
	Color	Utilize historically appropriate colors and finishes.
	Scale, size	Lodge remains dominant building; new construction not to exceed 650 s.f., 1 story for individual buildings; (smaller than the lodge and similar to existing cabins and bathhouse structures.)
	Roof design	Gable roofs; roof pitch and composition consistent with historic buildings; appropriate for snow loads. Use fire resistant materials.
Buildable Circulation Zone	Layout	Preserve lodge as the center of the complex surrounded by cabins clustered on either side in distinct groupings and oriented around meadow. Consolidate parking; separate from cabins. Minimize parking visibility to lodge entrance and critical views. Views from Roosevelt Lodge porch are enhanced by improving parking lot design. Signs, night lighting, and vegetation to follow existing approved park guidelines.
	Setting	Tucked away, secluded, not visible from Grand Loop Road. Meadow in front of lodge and cabins retained as organizing feature. Enhance view from lodge porch of distant mountains. Trees interspersed throughout area provide shade, screening, and the feeling of being in a forest. Dry creek bed is retained as one of the original features around which the development was sited. Retain historic specimen trees and log footbridges.
	Materials	Asphalt for main roads and parking. Unpaved, natural appearance for other surfaces
	Scale, size	Retain narrow, historic access drive that leads to lodge.
Buildable Natural Zone	Layout	Facilities and utilities that are low to the ground or underground such as trails, boardwalk, and underground utilities. Lessen appearance of long straight lines of disturbance for utility trenches. Trails and boardwalks should follow park standards.
	Restoration	Strip and stockpile topsoil before construction and replace along disturbed trench-line after finish grading. Restore grade to match surrounding landscape; match natural surface drainage patterns and undulations in topography.
	Setting	Appearance of natural landscape with no above-ground features other than small utility boxes, hydrants, signs, trails, and boardwalks. Preserve natural views in landscape

Roosevelt Corral Location

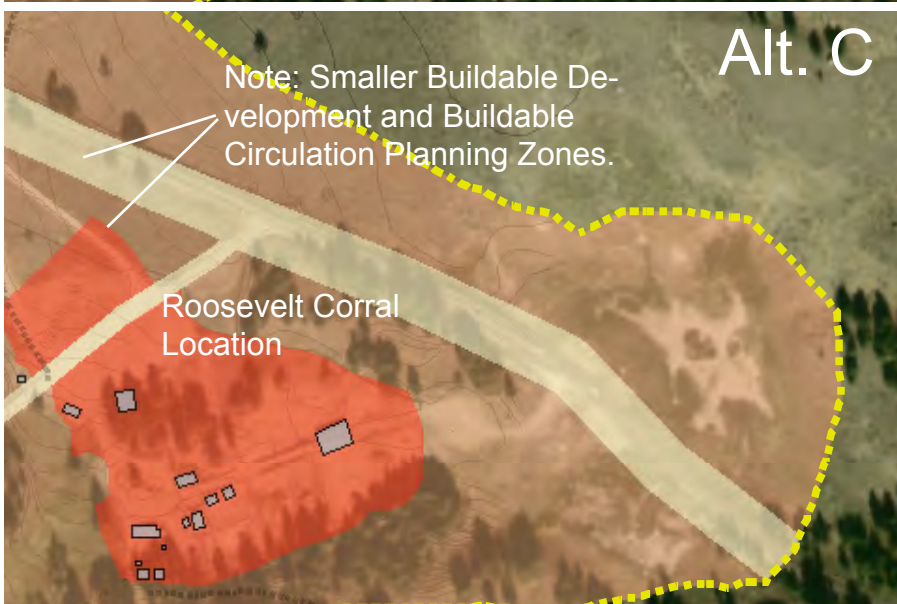
1 Planning Zones Figure 7a



Alternative A: (top)
No Action, no plan-change is determined on a case by case basis.



Alternative B: (middle) Medium Level of Change-
Buildable Development and Buildable Circulation planning zones show where a larger development footprint can take place.



Alternative C: (bottom) Low Level of Change-
Buildable Development and Buildable Circulation planning zones show a smaller development footprint.

Legend

Planning Boundary

Planning Zones

Administrative

Historic

Development

Natural

Circulation

Roosevelt Corral Location

Alternatives Comparison: Acceptable Limits of Change

2 Planning Prescriptions

Figure 7b

Zone	Alternative A No Action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Develop-ment Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Develop-ment Footprint	Primary Functions
Buildable Develop-ment Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 2,000 s.f. net gain for new buildings* Not to exceed current s.f. for unpaved parking	Concession visitor facilities related to traditional horse use.	Not to exceed 1,200 s.f. net gain for new buildings* Not to exceed current s.f. for unpaved parking	Concession Visitor Facilities related to traditional horse use.
				Concession operational facilities related to traditional horse use.		Concession Operational Facilities related to traditional horse use.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	Grand Loop Road shifts 100’	Circulation	Grand Loop Road stays the same as existing	Circulation
Buildable Natural Zone	Not defined in this alternative	Evaluated on case-by-case basis	Replacement with expansion	Utilities	Replacement in kind	Utilities
				Trails		Trails

***NOTE: This Plan/EA provides for the reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.**

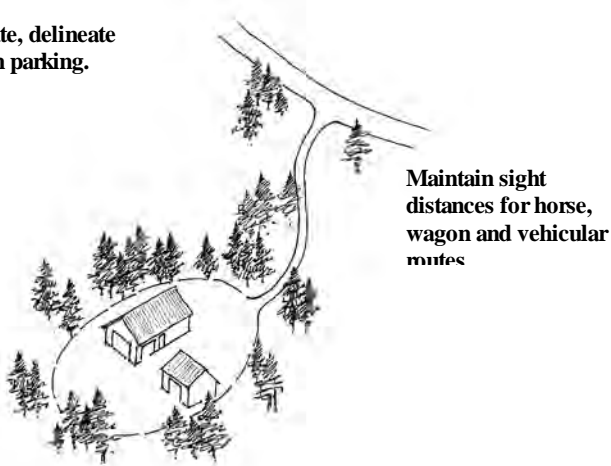
3 Design Standards

Design standards are applied to both Alternative B and C.



Clusters of trees help visually screen buildings and blend with their natural setting.

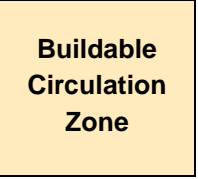
Consolidate, delineate and screen parking.



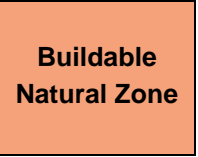
Maintain sight distances for horse, wagon and vehicular routes



- Materials** Simple, utilitarian, rustic style. Wood; board siding; log construction with small diameter logs. Use fire resistant materials. Character is compatible with corral style. Use sustainable design methods, materials and technology where possible.
- Color** Compatible with the natural setting, use sustainable , non-reflective finishes such as dark brown stain.
- Scale, size** Height and scale similar to existing structures; new construction not to exceed 2,000 s.f., 1 ½ stories for individual buildings; (smaller than Roosevelt Lodge and similar to the existing hay barn), cluster buildings.
- Roof design** Design, pitch and composition similar to existing buildings; appropriate for snow loads. Use non-reflective, fire resistant roofing materials.
- Layout** Functional. Consolidate, delineate and screen parking with buildings or vegetation so views from Roosevelt Lodge are maintained. Signs, vegetation and night lighting adhere to existing park guidelines. Separate and define vehicular areas from pedestrian areas. Consolidate and screen parking.
- Setting** Maintain natural landforms, enhance vegetative screening.



- Materials** Edges are defined so that circulation is functional. Route to Lodge maintains historic character.
- Layout** Sight distances are maintained for wagon, horse and vehicular routes. Safety is emphasized in circulation patterns. Pedestrian spaces are separated from circulation routes. Where Grand Loop Road is moved, alignment characteristics remain similar to existing.



- Materials** Colors blend with vegetation. All ground disturbances follow park standards for vegetation management. Utility lines consolidated.

Tower Ranger Station Location 1 Planning Zones

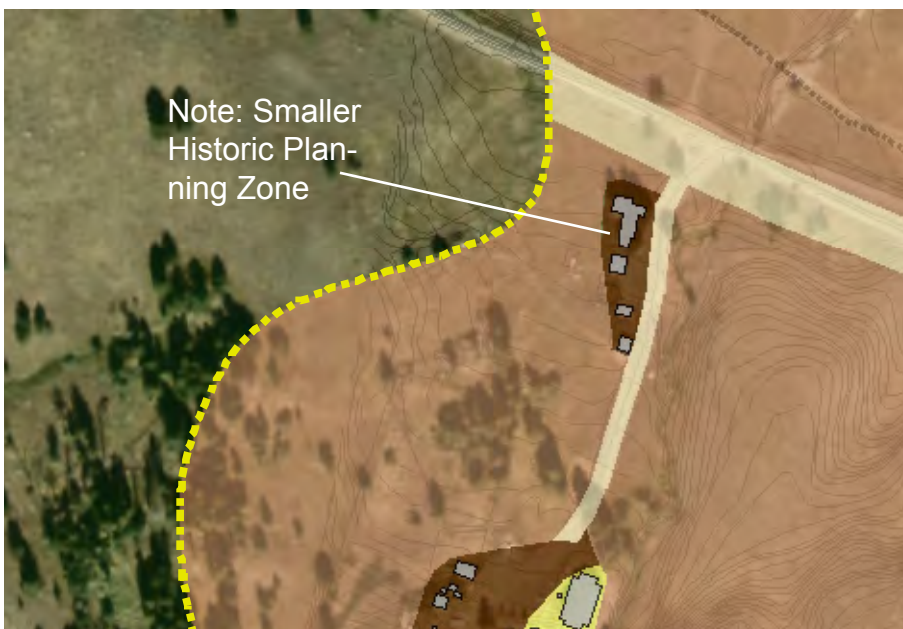
Figure 8a



Alternative A: (top)
No Action, no plan-
change is deter-
mined on a case by
case basis



Alternative B:
(middle) Medium
Level of Change-
planning zones in a
larger configuration,
larger development
footprint.



**Alternative C: (bot-
tom) Low Level of**
Change-planning
zones in smaller con-
figuration with less
development foot-
print.

Legend

- Planning Boundary
- Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Tower Ranger Station Location

Alternatives Comparison:
Acceptable Limits of Change

2 Planning Prescriptions

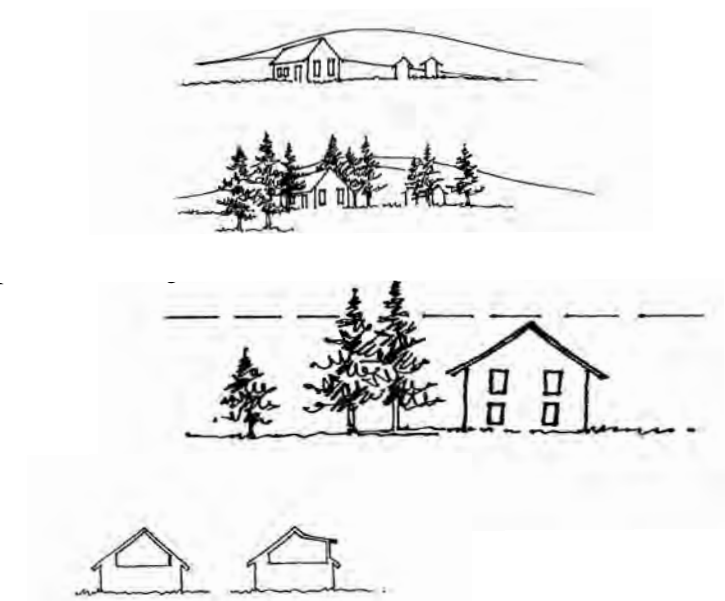
Figure 8b

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Develop-ment Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Develop-ment Footprint	Primary Functions
Buildable Historic Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 1,200 s.f. net gain for new buildings* Not to exceed 2,750 s.f. for new parking*	NPS administrative and visitor facilities.	Not to exceed 500 s.f. net gain for new buildings* Not to exceed current s.f. for parking	NPS administrative and visitor facilities.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	Historic access road remains	Circulation.	Historic access road remains	Circulation.
Buildable Natural Zone			Replacement with expansion.	Underground utilities.	Replacement in kind.	Underground utilities.
				Trails		Trails

***NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.**

3 Design Standards

Design standards are applied to both Alternative B and C.



Minimize mass in upper levels of buildings.

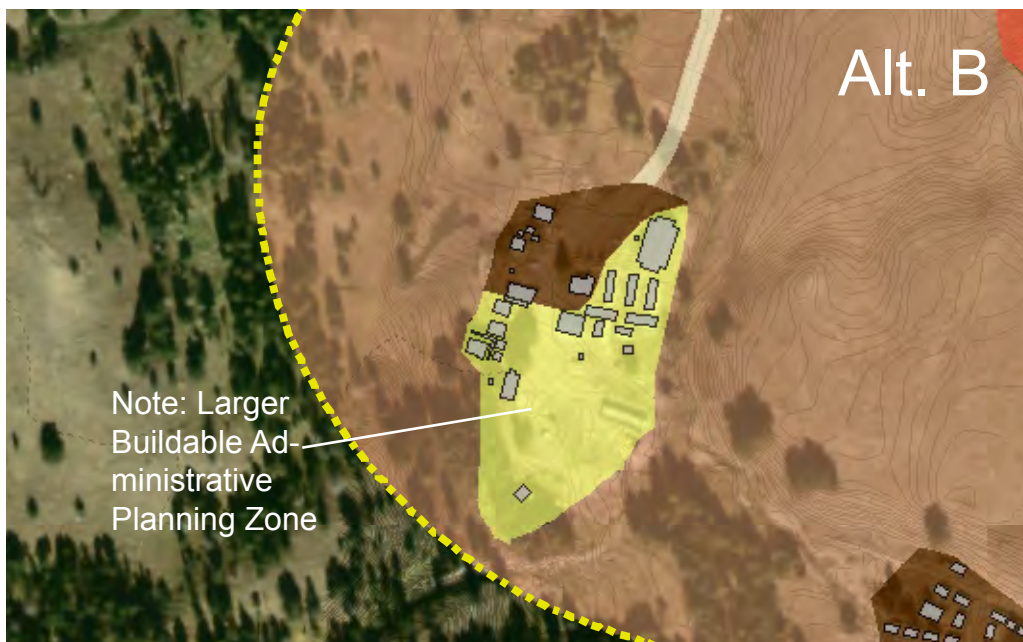
Buildable Historic Zone	Materials	Compatible with rustic architecture, use design elements of existing buildings. Avoid reflective finishes so surfaces blend visually. Use sustainable design methods, materials and technology where possible. Use fire resistant materials where possible.
	Color	Utilize historically appropriate colors.
	Scale, size	Ranger Station remains the dominant building in scale and size; new construction not to exceed 1,200 s.f., 1 ½ stories for individual buildings (smaller than the Ranger Station and similar to surrounding historic structures.)
	Roof design	Gabled roof, pitch and composition similar to historic buildings, wood shingles or similar appearance. Pitch appropriate for snow loads in area. Use fire resistant, non-reflective materials.
	Layout	Visually separate visitor services from administrative areas. Parking should not conflict with access road; screen parking from valley and historic structures. Signs, vegetation, and night lighting to follow existing approved guidelines.
Buildable Circulation Zone	Setting	Ranger Station presides over valley; maintain views of valley and open space in front of Ranger Station. Retain ridge to east. Maintain cultural landscape features such as creek and clustering of buildings.
	Materials	Asphalt for main roads and parking. Unpaved or natural appearance for other surfaces.
	Scale, size	Entrance road retains historic width and character.
	Layout	Enhance existing design.
Buildable Natural Zone	Setting	Narrow access road along small creek.
	Materials	Colors blend with vegetation.
		All ground disturbances follow park standards for vegetation management. Consolidate utility lines.

Tower Administrative Location 1 Planning Zones

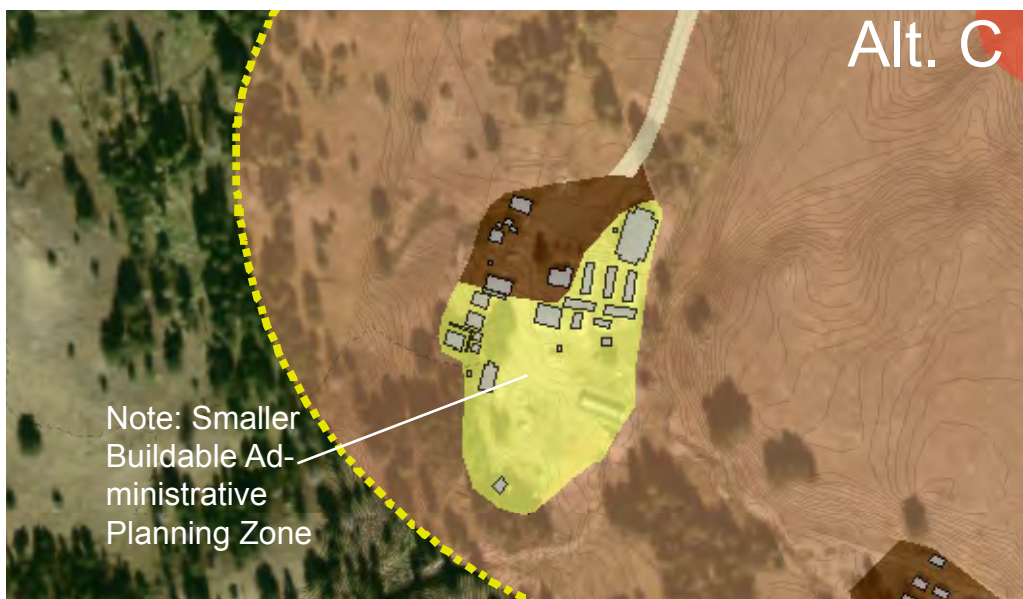
Figure 9a



Alternative A: (top) No Action, no plan- change is determined on a case by case basis.



Alternative B: (middle) Medium Level of Change-
Buildable Administrative planning zone shows where a larger development footprint can occur.



Alternative C: (bottom) Low Level of Change-
Buildable Administrative planning zone shows where a smaller development footprint can occur.

- Legend**
- Planning Boundary
 - Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Figure 9b

Tower Administrative Location

Alternatives Comparison:
Acceptable Limits of Change

2 Planning Prescriptions

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions
Buildable Administrative Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 5,400 s.f. net gain for new buildings* Not to exceed current s.f. for parking	NPS administrative and operational facilities.	Not to exceed 3,500 s.f. net gain for new buildings* Not to exceed current s.f. for parking	NPS administrative and operational facilities.
Buildable Historic Zone	Not defined in this alternative	Evaluated on case-by-case basis	No change	NPS administrative and operational facilities.	No change	NPS administrative and operational facilities.
Buildable Natural Zone	Not defined in this alternative	Evaluated on case-by-case basis	Replacement with expansion.	Underground utilities.	Replacement in kind.	Underground utilities.
				Trails		Trails

*NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.

3 Design Standards

Design standards are applied to both Alternative B and C.



Minimize mass in upper levels of buildings.

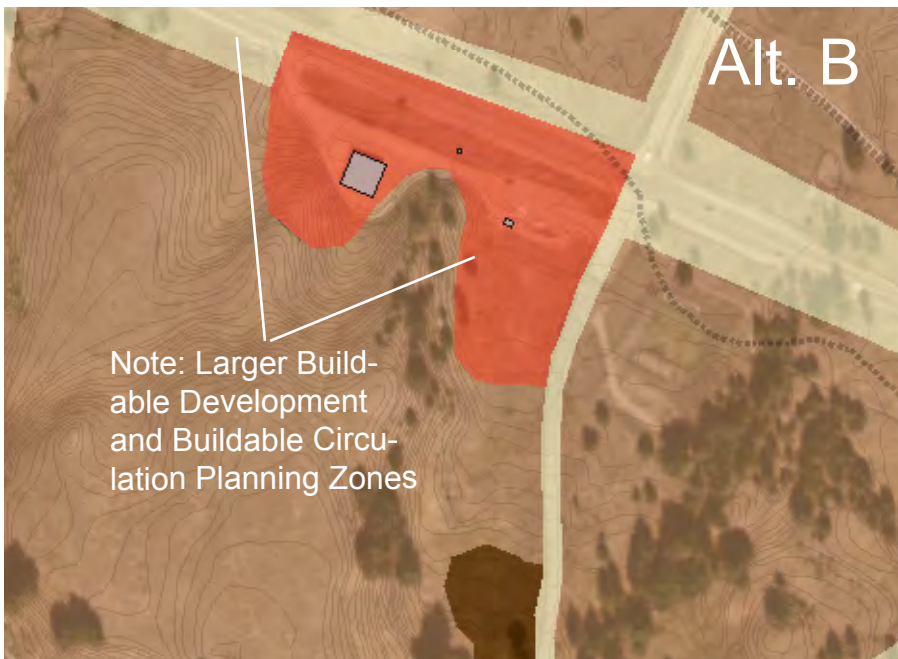
Buildable Administrative Zone	Materials	Durable, fire resistant materials blend with historic district in overall appearance; can be modern; avoid reflective finishes. Use sustainable design methods, materials and technology where possible.
	Color	Consistent throughout area, blends with natural environment, such as dark brown stain.
	Scale, size	Functional structures; not to exceed 3,500 s.f., 2 stories for individual buildings (the size of the existing 4-plex.)
	Roof design	Design, pitch and composition similar to existing buildings; appropriate for snow loads. Use dark, non-reflective, fire resistant materials, especially for roofing materials (to reduce visibility on taller structures.)
	Layout	Signs, night lighting, and vegetation to follow existing approved park guidelines.
Buildable Historic Zone	Setting	Consolidate maintenance area; separate from the visitor services and creek.
	Setting	Screen views from Grand Loop Road, Roosevelt Cabins and Tower Ranger Station.
	Materials	Compatible with rustic architecture, retain log fencing for corral area. Use fire resistant materials.
	Color	Utilize historically appropriate colors.
	Scale, size	Ranger Station remains the dominant building, new construction not to exceed 1,200 s.f., 1 ½ stories for individual buildings (smaller than the Ranger Station and similar to historic structures in the area.)
Buildable Natural Zone	Roof design	Design, pitch and composition similar to historic buildings; appropriate for snow loads. Use fire resistant materia
	Layout	Buildings clustered around barn and corral, separate from Ranger Station.
	Setting	Consolidate operational functions from visitor services and separate from creek.
	Setting	Screen views from the Grand Loop Road and Tower Ranger Station.
	Materials	Consolidate utility service lines; minimize creek crossings. Follow existing park guidelines for ground disturbance and revegetation. Minimize utility structures in visible locations.

Tower Junction Location

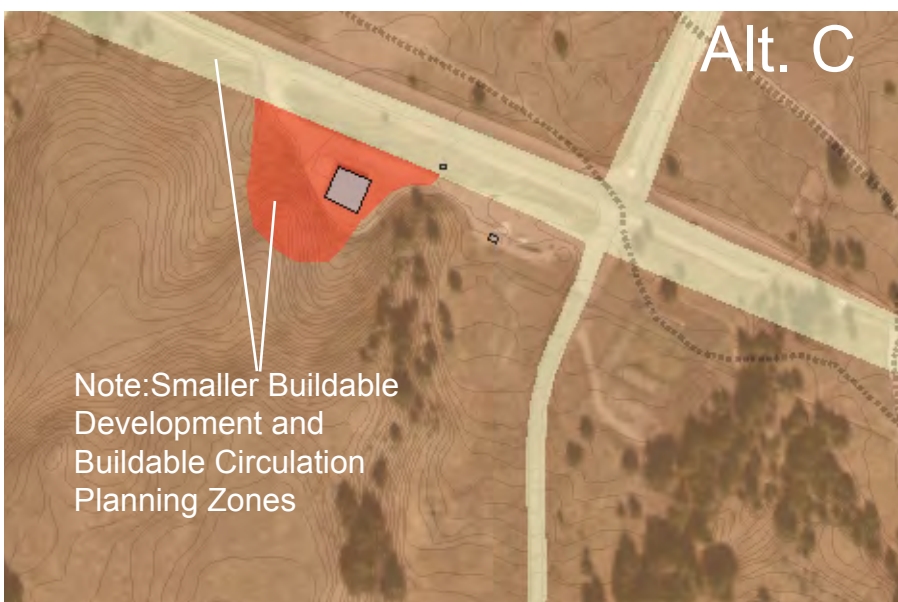
1 Planning Zones Figure 10a



Alternative A: (top) No Action, no plan-change is determined on a case by case basis.



Alternative B: (middle) Medium Level of Change-Buildable Development and Buildable Circulation planning zones show where a larger development footprint can occur.



Alternative C: (bottom) Low Level of Change-Buildable Development and Buildable Circulation planning zones show where less development footprint can occur.

Legend

■ Planning Boundary

Planning Zones

■ Administrative

■ Historic

■ Development

■ Natural

■ Circulation

Tower Junction Location

Alternatives Comparison:
Acceptable Limits of Change

Figure 10b

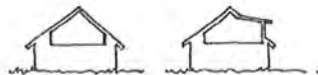
2 Planning Prescriptions

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions
Buildable Development Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 9,000 s.f. net gain for buildings* Not to exceed 35,400 s.f. net gain for parking*	Concession visitor facilities.	Not to exceed 2,000 s.f. net gain for buildings* Not to exceed 15,000 s.f. net gain for parking*	Concession visitor facilities.
				NPS Visitor Services.		NPS Visitor Services.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	Same footprint; however alignment shifts	Circulation pertaining to Grand Loop Road.	No change	Circulation pertaining to Grand Loop Road.
Buildable Natural Zone	Not defined in this alternative	Evaluated on case-by-case basis	Replacement with expansion	Underground utilities.	Replacement in kind	Underground utilities.
				Trails		Trails

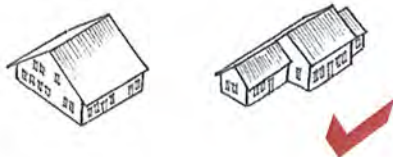
*NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.

3 Design Standards

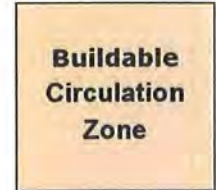
Design standards are applied to both Alternative B and C.



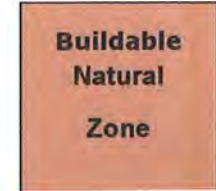
Minimize mass in upper levels of buildings; avoid large, single structures to lessen visibility.



- Materials: Character and appearance of materials compatible with rustic architecture that blends with natural surroundings; wood, native stone and log detailing utilized. Avoid reflective finishes that may be visible across the valley, especially roofing material.
- Color: Compatible with the natural setting, use sustainable finishes that minimize visibility in open locations.
- Scale, size: Height and scale similar to surrounding structures; new construction not to exceed 2,000 s.f., 1 ½ stories for individual buildings (smaller than the Roosevelt Lodge but similar to the Tower Ranger Station and the Corral Hay Barn.) Integrate with natural landforms. Avoid the use of large, single structures to reduce visibility.
- Roof design: Design, pitch and composition appropriate for area snow loads.
- Layout: Utilize buildings and landforms to screen parking. Signs, vegetation, and night lighting follow existing approved park guidelines. Minimize night lighting locations.
- Setting: Maintain natural landforms, enhance vegetative screening.



- Materials: Compatible with Grand Loop Road Historic District.
- Scale, size: Minimize visibility of parking areas, enhance sight distances and pedestrian crossings.
- Layout: Retain curvilinear alignment.
- Setting: Utilize 30' vegetated berms to screen between corral parking and roads.



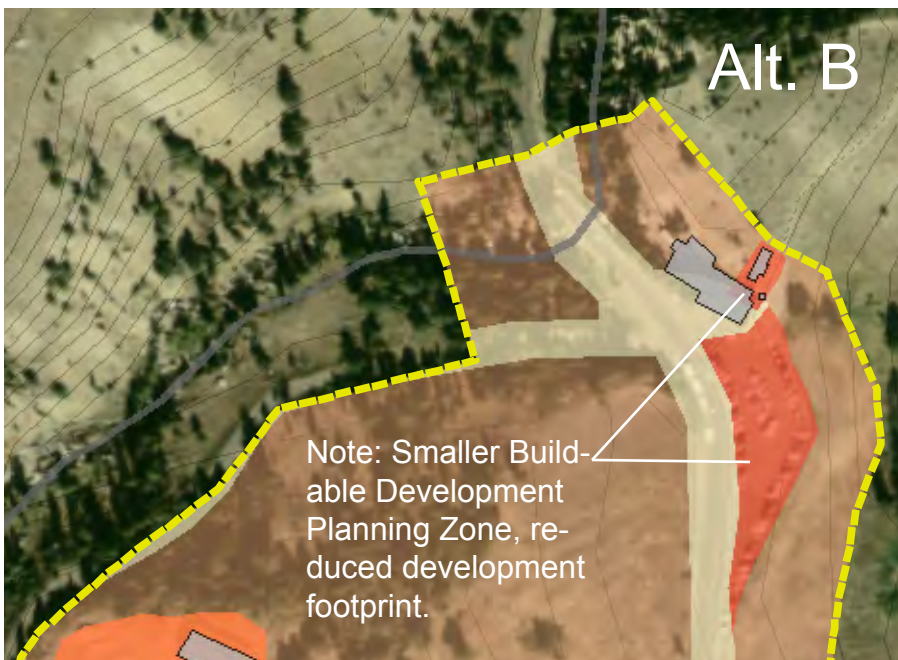
- Materials: Colors for utility boxes blend with natural surroundings.
- Layout: Ground disturbances follow existing park guidelines for revegetation.

Tower Fall Trailhead Location

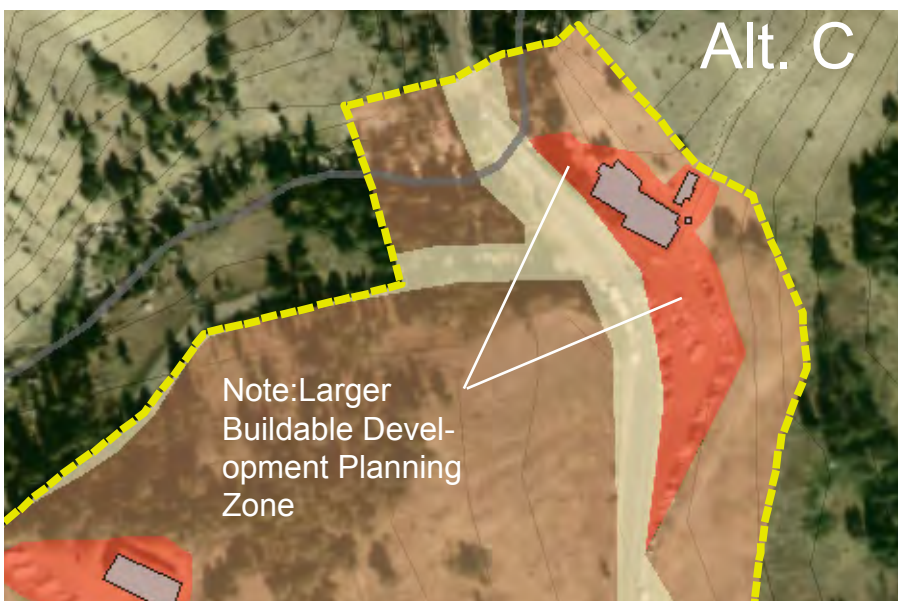
1 Planning Zones Figure 11a



Alternative A: (top) No Action, no plan-change is determined on a case by case basis.



Alternative B: (middle) Medium Level of Change-Buildable Development planning zone shows where a reduced development footprint can occur.



Alternative C: (bottom) Low Level of Change-Buildable Development planning zone shows where more development footprint, similar to existing, can occur.

Legend

- Planning Boundary
- Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Figure 11b

Tower Fall Trailhead Location Alternatives Comparison: Acceptable Limits of Change

2 Planning Prescriptions

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions
Buildable Development Zone	Not defined in this alternative	Evaluated on case-by-case basis	Net reduction ranges by 5,000-10,000 s.f.; maximum 10,000 s.f. net reduction* Reduce parking by 6,000 s.f.*	NPS visitor facilities and parking. Concession operational facilities relating to retail.	Net reduction ranges from current 10,000 s.f. to 4,999.s.f.* Not to exceed 16,000 s.f. net gain for parking.*	NPS visitor facilities and parking. Concession visitor facilities relating to retail.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	Grand Loop Road	NPS visitor road maintained.	Grand Loop Road	NPS visitor roads maintained.
Buildable Natural Zone	Not defined in this alternative	Evaluated on case-by-case basis	Reduce utilities.	Underground utilities.	Existing utilities remain. No additional capacity.	Underground utilities.
				Trails		Trails

*NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.

3 Design Standards

Design standards are applied to both Alternative B and C.



Clusters of trees and landforms help visually blend buildings with the natural setting. Trees also screen buildings from the road.

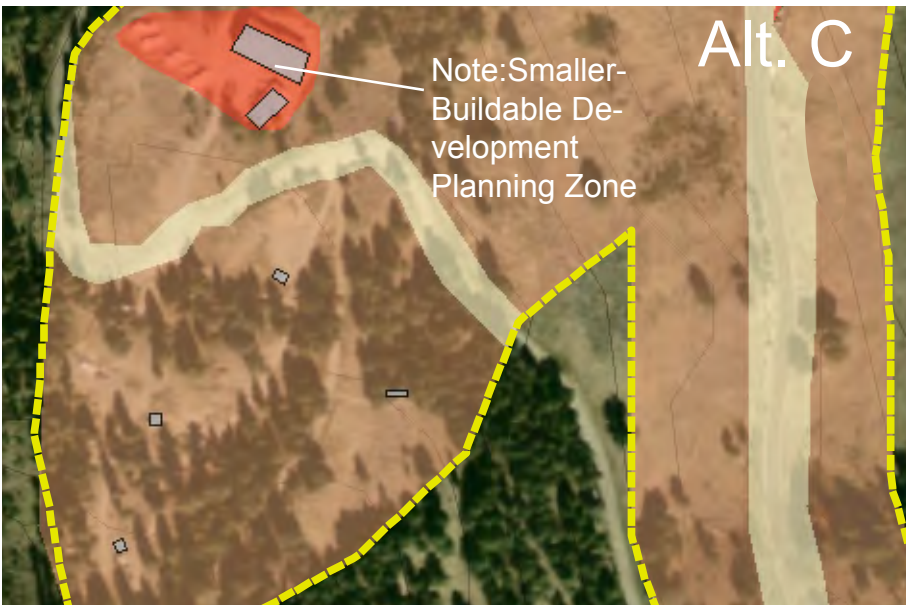
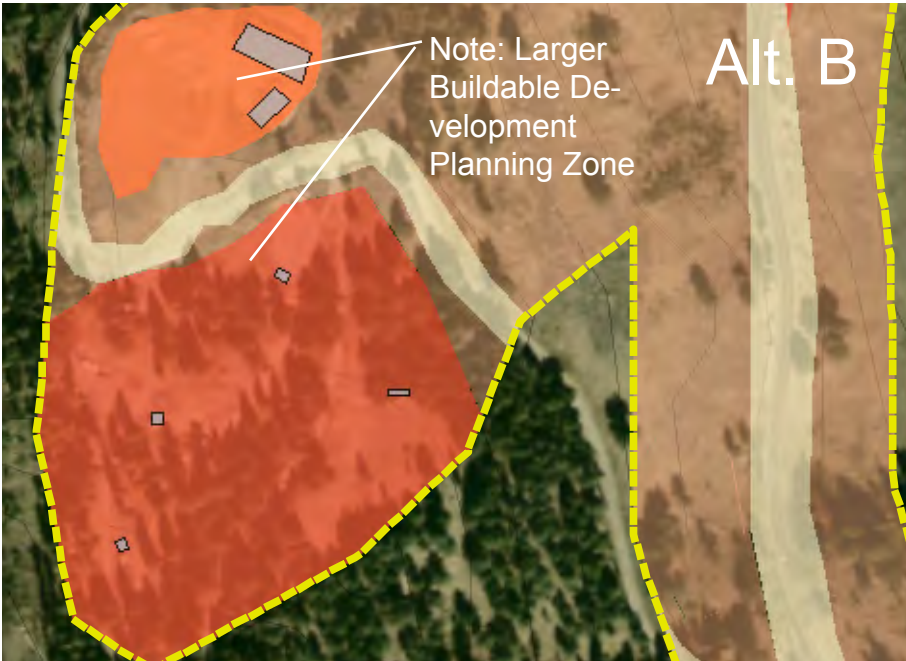


Break up mass of building.

Buildable Development Zone	Materials	Character and appearance of materials compatible with rustic architecture that blends with natural surroundings; wood, native stone and log detailing utilized. Avoid reflective finishes that may be visible across the valley, especially roofing material. Use sustainable, fire resistant design methods, materials and technology where possible.
	Color	Compatible with the natural setting, use sustainable finishes that minimize visibility in open locations.
	Scale, size	Height and scale similar to surrounding structures; new construction not to exceed 2,000 s.f., 1 ½ stories for individual buildings (smaller than the Roosevelt Lodge but similar to the Tower Ranger Station and the Corral Hay Barn.) Integrate with natural landforms. Avoid the use of large, single structures to reduce visibility.
	Roof design	Design, pitch and composition appropriate for area snow loads. Use fire resistant, non-reflective roofing materials.
	Layout	Utilize buildings and landforms to screen parking. Signs, vegetation, and night lighting follow existing approved park guidelines. Minimize night lighting locations.
	Setting	Maintain natural landforms, enhance vegetative screening.
Buildable Circulation Zone	Layout	Enhance sight distances, pedestrian safety and crossings; separate road from parking with vegetation.
	Setting	Compatible with Grand Loop Road Historic District. Retain curvilinear alignment
Buildable Natural Zone	Materials	Colors blend with vegetation for utility boxes. Ground disturbances follow park standards for revegetation. Consolidate utility corridors.

Tower Fall Campground Location

Planning Zones Figure 12a



Alternative A: (top) No Action, no plan-change is determined on a case by case basis.

Alternative B: (middle) Medium Level of Change-Buildable Development planning zone shows where a larger development footprint can occur.

Alternative C: (bottom) Low Level of Change-Buildable Development planning zone shows where less development footprint can occur.

- Legend**
- Planning Boundary
 - Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Tower Fall Campground Location
Alternatives Comparison:
Acceptable Limits of Change

2 Planning Prescriptions

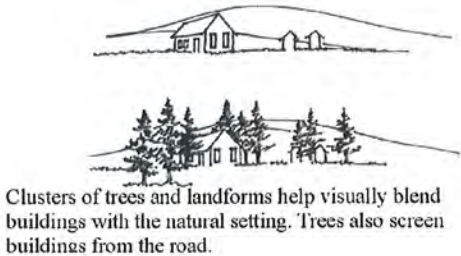
Figure 12b

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Develop- ment Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Develop- ment Footprint	Primary Functions
Buildable Develop- ment Zone	Not defined in this alternative	Evaluated on case-by-case basis	Not to exceed 1,300 s.f. net gain for buildings * Not to exceed current s.f. for unpaved parking.	NPS visitor facilities. Concession operational facilities relating to retail.	Not to exceed 200 s.f. net gain for buildings* Not to exceed current s.f. for unpaved parking.	NPS visitor facilities. Concession operational facilities relating to retail.
Buildable Circulation Zone	Not defined in this alternative	Evaluated on case-by-case basis	Replacement with expansion.	Circulation.	Replacement in kind.	Circulation.
Buildable Natural Zone	Not defined in this alternative	Evaluated on case-by-case basis	Replacement with expansion.	Underground utilities.	Replacement in kind.	Underground utilities.
				Boardwalks, trails		Boardwalks, trails.

*NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with

3 Design Standards

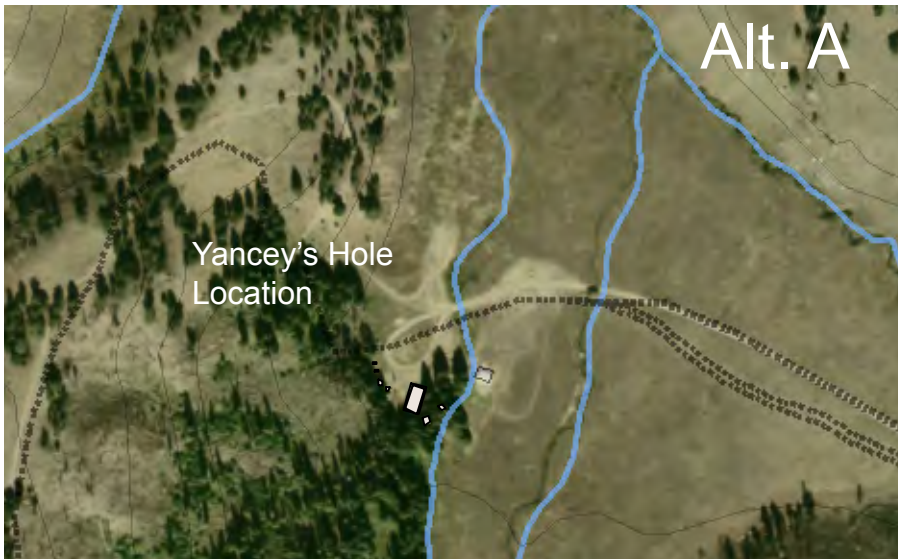
Design standards are applied to both Alternative
B and C.



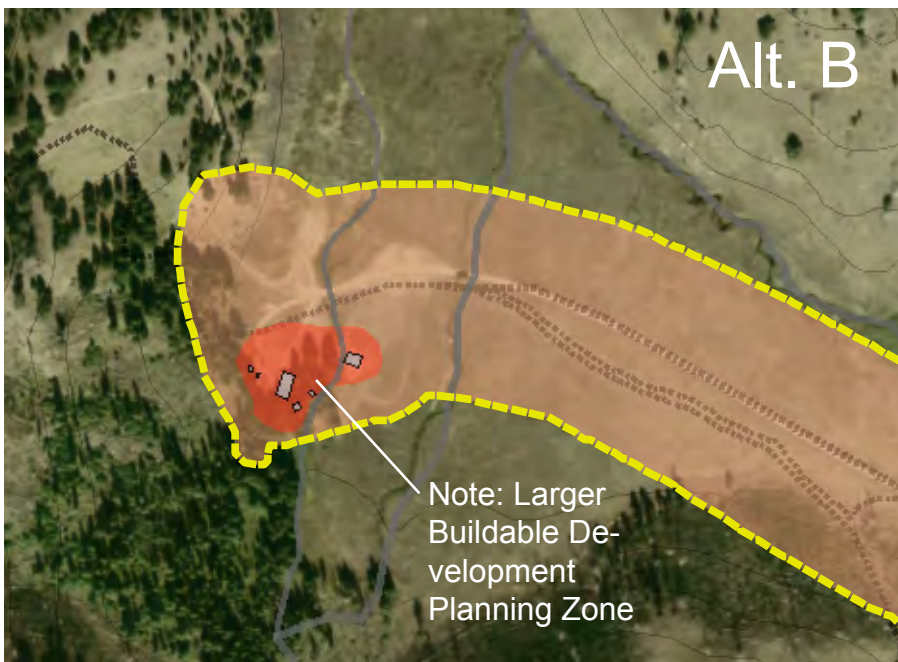
Buildable Develop- ment Zone	Materials	Character and appearance of materials blends with natural surroundings; rustic campground character with wood, native stone and log detailing utilized. Log curbing, log screening fences. Use sustainable, fire resistant design methods, materials and technology where possible.
	Scale, size	Compatible with the natural setting, use sustainable finishes that minimize visibility in open locations, such as dark brown stain.
	Roof design	Height and scale similar to or smaller than existing structures; new construction not to exceed 1,200 s.f, 1 story (size of existing structure.) Integrate structures with natural landforms. Use non-reflective, fire resistant roofing materials.
	Layout	Design, pitch and composition appropriate for area snow loads.
	Setting	Utilize vegetation and landforms to screen parking and administrative area/campground. Signs, vegetation, and night lighting follow existing approved park guidelines. Maintain natural landforms, enhance vegetative screening. Separate and screen administrative structures from campground.
Buildable Circulation Zone	Layout	Enhance sight distances, pedestrian safety and crossings; separate road from with vegetation.
	Setting	Retain curvilinear alignment.
Buildable Natural Zone	Materials	Colors blend with vegetation for utility boxes.
	Layout	Ground disturbances follow park standards for revegetation. Consolidate utility corridors.

Yancey's Hole Location

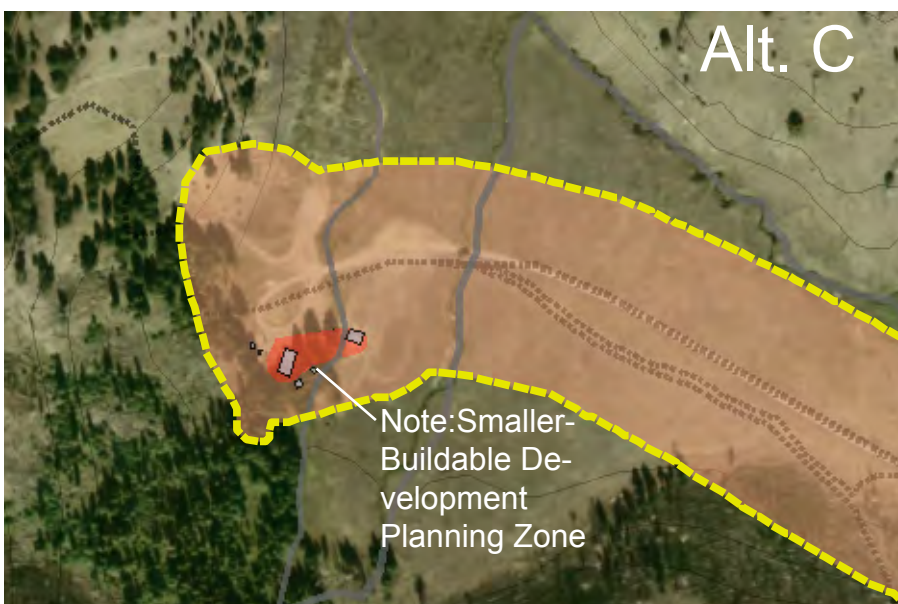
1 Planning Zones Figure 13a



Alternative A: (top) No Action, no plan-change is determined on a case by case basis.



Alternative B: (middle) Medium Level of Change-Buildable Development planning zone shows where a larger development footprint can occur.



Alternative C: (bottom) Low Level of Change-Buildable Development planning zone shows where less development footprint can occur.

- Legend**
- Planning Boundary
 - Planning Zones
 - Administrative
 - Historic
 - Development
 - Natural
 - Circulation

Yancey's Hole Location
Alternatives Comparison:
Acceptable Limits of Change

Figure 13b

2 Planning Prescriptions

Zone	Alternative A No action		Alternative B Medium Level of Change		Alternative C Low Level of Change	
	Maximum Change in Develop- ment Footprint	Primary Functions	Maximum Change in Development Footprint	Primary Functions	Maximum Change in Develop- ment Footprint	Primary Functions
Buildable Develop- ment Zone	Not defined for this alternative	Evaluated on case-by-case basis	Not to exceed 125 s.f. net gain for buildings* Not to exceed current s.f. of unpaved parking.	Concession visitor facilities.	Replacement in kind. Not to exceed current s.f. of unpaved parking.	Concession visitor facilities.
Buildable Natural Zone	Not defined for this alternative	Evaluated on case-by-case basis	Replacement with expansion.	Boardwalks, trails.	Replacement in kind.	Boardwalks, trails.

*NOTE: This Plan/EA provides for reduction, replacement and new development footprint. Changes to historic properties require compliance with Section 106 of NHPA. Changes to floodplains, wetlands and other waters of the U.S. require compliance with law and policy.

3 Design Standards

Design standards are applied to both Alternative B and C.



Clusters of trees minimize the visibility of structures, provide shade within the natural setting.

Buildable Develop- ment Zone	Materials	Materials reflect character of location. Sustainable, rustic design with stone and wood accents. Minimize impact by using sustainable materials, which reduce replacement and support wildlife management practices. Access road remains unpaved. Avoid reflective materials that would be visible from the valley. Use sustainable, fire resistant design methods, materials and technology where possible.
	Color	Compatible with rustic setting; blend with the surroundings, especially in visible locations.
	Scale, size Roof design Layout	New buildings are lower than the height of the average tree canopy; similar to existing heights. Access road width maintained. Compatible design, pitch and composition to blend into surrounding landscape. Use non-reflective, fire resistant materials. Minimize impacts to surrounding sensitive resources through design. Excavation is minimized. Horse hitching is consolidated and confined to areas that avoid streams and are separated from visitor use areas. Night lighting, vegetation, and signs follow existing approved park guidelines.
	Setting	Minimize visibility from adjacent Grand Loop Road and surrounding trails.
Buildable Natural Zone	Materials	Materials reflect character of primitive landscape.
	Layout	Consolidate social trails, access, and activities. Disturbance to surrounding resources should be minimized. Minimize excavation. Delineate unpaved parking so that it remains consolidated.

Table 3: Comparison of Development Footprint and Possible Projects for Each Alternative

Possible projects and development footprints are proposed for each of the eight locations under this plan. Table 3 compares the square footage of development footprint for each alternative. It also compares the possible projects that may be accommodated within that footprint for each of the eight locations in the Tower-Roosevelt area. Development footprint and possible projects are described in Chapters 1 and 2. Existing building footprints that may serve as examples include: the front (visible) portion of the existing Roosevelt Lodge is 2,000 s.f. and the existing service station (including roof over pumps) is 3,100 s.f. The current total development footprint for buildings at Roosevelt Lodge is 62,967 s.f. for buildings and 31,392 s.f. for paved parking. At the Tower Junction location, the current total development footprint is 3,391 s.f. for buildings and 32,301 s.f. for paved parking.

	Alternative A: No Action	Alternative B: Medium Level of Change	Alternative C: Low Level of Change
	Location	Development Footprint and Possible Projects	Development Footprint and Possible Projects
	Tower Junction	Not to exceed 9,000 square feet net gain in additional building footprint and 35,400 net gain in additional square feet of additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct new commercial service buildingRemodel service station buildingConstruct new public restroomsImprove parking for 85 autos and 8 oversized vehiclesRe-align the Grand Loop RoadConstruct visitor contact station	Not to exceed 2,000 square feet net gain in additional building footprint and 15,000 square feet net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct new commercial service buildingRemove service station building—fuel service onlyConstruct new public restroomsImprove parking for 60 autos and 4 oversized vehicle spacesNo change to Grand Loop Road
	Tower Ranger Station	Not to exceed 1,200 square feet net gain in additional building footprint and 2,750 square feet net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Replace existing backcountry officeConvert ranger station (residence) to visitor contact stationAdd visitor parking	Not to exceed 500 square feet net gain in additional building footprint and no net gain in parking footprint. Possible projects might include: <ul style="list-style-type: none">Expand existing backcountry office
	Roosevelt Lodge	Not to exceed 7,200 square feet net gain in additional building footprint and 10,000 square feet net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct employee restrooms and shower houseImprove Roosevelt Lodge parking.Construct more cabins	Not to exceed 650 square feet net gain in additional building footprint and no net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct Roosevelt employee restrooms and shower houseImprove Roosevelt Lodge parking.
	Roosevelt Corrals	Not to exceed 2,000 square feet net gain in additional building footprint and no net gain in parking footprint. Possible projects might include: <ul style="list-style-type: none">Replace saddle barnConstruct shade shelterReplace hay barn	Not to exceed 1,200 square feet net gain in additional building footprint and no net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Replace saddle barnConstruct shade shelter
	Tower Administrative	Not to exceed 5,400 square feet net gain in additional building footprint and no net gain in parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct employee housingConstruct emergency services building	Not to exceed 3,500 square feet net gain in additional building footprint and no net gain in additional parking footprint. Possible projects might include: <ul style="list-style-type: none">Construct employee housing (includes replacement housing for ranger station residence)Construct emergency service buildings
	Yancey’s Hole	Not to exceed 125 square feet net gain in additional buildings footprint. Possible projects might include: <ul style="list-style-type: none">Replace dining shelterModify serving shelterInstall vault toilet	No change in development footprint. Possible projects might include: <ul style="list-style-type: none">Replace dining shelter
	Tower Fall Trailhead	Net reduction in existing building footprint of 5,000 to 10,000 square feet and net reduction in parking footprint of 6,000 square feet. Possible projects might include: <ul style="list-style-type: none">Remove the Tower Fall General StoreReduce the Tower Fall parking and trailhead	Net reduction in existing building footprint by zero to 4,999 square feet, 16,000 square feet net gain in additional parking. Possible projects might include: <ul style="list-style-type: none">Reduction of the Tower Fall General StoreImprove the Tower-Fall parking
	Tower Fall Camp-ground	Not to exceed 1,300 square feet net gain in additional building footprint and no net gain in parking footprint. Possible projects might include: <ul style="list-style-type: none">Install vault toilet in campgroundReplace housing in dormitory area	Not to exceed 200 square feet net gain in building footprint. Possible projects might include: <ul style="list-style-type: none">Install vault toilet in campground

**NOTE: This Plan/EA provides for the replacement of existing development footprint in addition to new development footprint. Changes to historic properties require compliance with Section 106 of the National Historic Preservation Act.

TABLE 1: ENVIRONMENTAL IMPACTS SUMMARY BY ALTERNATIVE

Table 1 summarizes the anticipated environmental impacts for alternatives A, B, and C. Only those impacts that have been carried forward for further analysis are included in this table. Chapter 4, Environmental Consequences, provides a more detailed analysis of these impacts.

Impact Topic	Alternative A (no action)	Alternative B	Alternative C
Natural Resources			
Geologic, Paleontological, and Soils Resources	Long-term moderate adverse impacts to geologic, paleontological, and soils resources.	Long-term moderate adverse impacts to geologic, paleontological, and soils resources.	Long-term minor adverse impacts to geologic, paleontological, and soils resources.
Vegetation, including Rare Plants	Long-term moderate adverse impacts to vegetation and rare plants.	Short and long-term minor to moderate adverse impacts to vegetation and rare plants.	Short and long-term minor adverse impacts to vegetation and rare plants.
Floodplains and Wetlands	Short and long-term minor adverse impacts to floodplains and wetlands.	Short-term minor and long-term minor adverse impacts to floodplains and wetlands.	Short term minor and long-term negligible to minor adverse impacts to floodplains and wetlands.
Wildlife	Short and long-term minor to moderate adverse impacts to wildlife.	Short and long-term minor adverse impacts to wildlife.	Short and long-term minor adverse impacts to wildlife.
Threatened and Endangered Species	Long-term minor impacts (may affect, but is not likely to adversely affect) to Canada lynx or gray wolves.	Short and long-term minor impacts (may affect, but is not likely to adversely affect) to Canada lynx or gray wolves.	Short and long-term negligible to minor impacts (may affect, but is not likely to adversely affect) to Canada lynx or gray wolves.

Impact Topic	Alternative A (no action)	Alternative B	Alternative C
Soundscapes	Short and long-term minor adverse impacts to natural soundscapes.	Short and long-term minor adverse and beneficial impacts to natural soundscapes.	Short and long-term, negligible to minor adverse and beneficial impacts to natural soundscapes.
Cultural Resources			
Archeological Resources	Long-term moderate adverse impacts to archeological resources with “adverse affect” for Section 106.	Long-term moderate adverse impacts to archeological resources with “adverse affect” for Section 106.	Long-term negligible to minor adverse impacts to archeological resources with “no adverse affect” for Section 106.
Historic Resources	Long-term minor adverse impacts to historic resources, with a Section 106 of NHPA determination of “no adverse effect”.	Long-term minor adverse impacts to historic resources, with a Section 106 of NHPA determination of “no adverse effect”. Possible moderate adverse impacts to Mission 66 buildings if found eligible. Mitigation would result in “no adverse effect” for Section 106 of NHPA.	Long-term negligible to minor adverse impacts to historic resources, with a Section 106 of NHPA determination of “no adverse effect”. Possible moderate adverse impacts to Mission 66 buildings if found eligible. Mitigation would result in “no adverse effect” for Section 106 of NHPA.
Cultural Landscapes	Long-term, minor to moderate adverse impacts to cultural landscapes; with a Section 106 of NHPA determination of “adverse effect”.	Long-term minor adverse and beneficial impacts to cultural landscapes; with a Section 106 of NHPA determination of “no adverse effect”.	Long-term negligible adverse and minor beneficial impacts to cultural landscapes; with a Section 106 of NHPA determination of “no adverse effect”.
Health and Human Safety	Short and long-term moderate adverse and negligible beneficial impacts to human health and safety	Short and long-term moderate adverse and moderate beneficial impacts to human health and safety	Short and long-term minor adverse and moderate beneficial impacts to human health and safety

Impact Topic	Alternative A (no action)	Alternative B	Alternative C
Visual Quality, including Lightscapes	Short and long-term moderate adverse impacts to visual quality. Long-term minor adverse impacts to the night sky.	Short and long-term moderate adverse and minor beneficial impacts to visual quality. Long-term minor adverse and beneficial impacts to the night sky.	Long-term minor adverse and beneficial impacts to visual quality. Long-term minor adverse and beneficial impacts to the night sky.
Visitor Use and Experience	Long-term minor to moderate adverse impacts to visitor use and experience.	Long-term moderate adverse impacts and moderate beneficial impacts to visitor use and experience.	Long-term minor adverse and minor beneficial impacts to visitor use and experience.
Park Operations	Long-term minor to moderate adverse impacts and minor adverse impact to park operations.	Short and long-term moderate adverse impacts and moderate beneficial impacts to park operations.	Short and long-term minor, adverse and minor beneficial impacts to park operations.

TABLE 2: SUCCESS IN MEETING TRCP/EA OBJECTIVES

This table compares each alternative's success in meeting the TRCP/EA objectives listed in Chapter 1.

Objective	Alternative A (no action)	Alternative B	Alternative C
Ensure that the desired conditions for natural, cultural and visual resources and values, and visitor experience are defined and achieved.	<p>Alternative A does not adopt desired conditions for natural and cultural resources and values, and visitor experience.</p> <p>Alternative A does not meet this objective.</p>	<p>Alternative B adopts the desired conditions for natural and cultural resources, values, and visitor experience, which are benchmarks for park resources and visitor experience that should be achieved while considering changes to the built environment.</p> <p>Alternative B meets this objective.</p>	<p>Alternative C adopts the desired conditions for natural and cultural resources and values, and visitor experience, which are benchmarks for park resources and visitor experience that should be achieved while considering changes to the built environment.</p> <p>Alternative C meets this objective.</p>
Preserve, protect, and improve park resources and values and enhance visitor experiences by guiding the location, function, size, and appearance of visitor services, facilities, and infrastructure.	<p>Alternative A would not guide the location, function, size, and appearance of visitor services, facilities, and infrastructure. The evaluation of future project proposals would not have the benefit from guidance that has considered protecting park resources and values and enhance visitor experiences. Alternative A does not meet this objective.</p>	<p>Alternative B would guide the location, function, size, and appearance of visitor services, facilities, and infrastructure. The evaluation of future project proposals would benefit from guidance that has considered protecting park resources and values and enhance visitor experiences.</p> <p>Alternative B meets this objective.</p>	<p>Alternative C would guide the location, function, size, and appearance of visitor services, facilities, and infrastructure. The evaluation of future project proposals would benefit from guidance that has considered protecting park resources and values and enhance visitor experiences.</p> <p>Alternative C meets this objective.</p>
Provide resource	Alternative A would	Alternative B would include	Alternative C would include

Objective	Alternative A (no action)	Alternative B	Alternative C
information in a single document to better assess possible cumulative impacts for proposed and future projects.	<p>benefit from the resource information gathered during the comprehensive planning process. However, it would not specifically present it in a single document or assess the cumulative impacts for proposed future actions since it addresses projects on a case-by-case basis.</p> <p>Alternative A does not meet this objective.</p>	<p>the resource information within the plan document and utilize it to assess the cumulative impacts of the buildable zones, development footprints, functions, and design standards that restrict future projects.</p> <p>Alternative B meets this objective.</p>	<p>the resource information within the plan document and utilize it to assess the cumulative impacts of the buildable zones, development footprints, functions, and design standards that restrict future projects.</p> <p>Alternative C meets this objective.</p>
Use sustainable designs, methods, building practices, and technologies to the extent possible.	<p>There are no guidelines or standards for sustainable design in Alternative A.</p> <p>Alternative A does not meet this objective.</p>	<p>The design standards, common to both action alternatives B and C, require sustainable methods, practices and technologies to the extent possible.</p> <p>Alternative B meets this objective</p>	<p>The design standards, common to both action alternatives B and C, require sustainable methods, practices and technologies to the extent possible.</p> <p>Alternative B meets this objective</p>
Identify opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions for resources and visitor experience; reinvesting resources to improve the condition of the park's most important assets.	<p>Alternative A does not identify opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions for resources and visitor experience; reinvesting resources to improve the condition of the park's most important assets.</p> <p>Alternative B meets this</p>	<p>Alternative B identifies opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions for resources and visitor experience; reinvesting resources to improve the condition of the park's most important assets.</p> <p>Alternative B meets this objective.</p>	<p>Alternative C identifies opportunities to reduce buildings, roads, trails, utility systems, and other facilities that do not support the desired conditions for resources and visitor experience; reinvesting resources to improve the condition of the park's most important assets.</p> <p>Alternative C meets this objective.</p>

Objective	Alternative A (no action)	Alternative B	Alternative C
	objective.		
Guide decisions to provide high quality visitor services; concentrating efforts on core services at core locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.	<p>Alternative A does not guide decisions to provide high quality visitor services; concentrating efforts on core services at core locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.</p> <p>Alternative B meets this objective.</p>	<p>Alternative B guides decisions to provide high quality visitor services; concentrating efforts on core services at core locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.</p> <p>Alternative B meets this objective.</p>	<p>Alternative C guides decisions to provide high quality visitor services; concentrating efforts on core services at core locations, during peak visitation periods, while maintaining essential services throughout the Tower-Roosevelt area.</p> <p>Alternative C meets this objective.</p>
Develop a consistent and timely process to evaluate project proposals to determine their appropriateness based on acceptable levels for change.	<p>Alternative A would not establish a timely process to evaluate project proposals based on Buildable Planning Zones, Planning Prescriptions and Design Standards to determine their appropriateness based on acceptable levels for change.</p> <p>Alternative A does not meet this objective.</p>	<p>Alternative B would establish a timely process to evaluate project proposals based on Buildable Planning Zones, Planning Prescriptions and Design Standards to determine their appropriateness based on acceptable levels for change.</p> <p>Alternative B meets this objective.</p>	<p>Alternative C would establish a timely process to evaluate project proposals based on Buildable Planning Zones, Planning Prescriptions and Design Standards to determine their appropriateness based on acceptable levels for change.</p> <p>Alternative C meets this objective.</p>

Chapter 3: AFFECTED ENVIRONMENT

NATURAL RESOURCES

All natural resource survey maps are referenced in Appendix B.

Geologic, Paleontological, and Soils Resources

Terminology:

Loamy sand- a mixture of sand, silt, clay and organic matter. There is more sand in a sandy loam than loamy sand. Water flows faster through loamy sand than sandy loam or loam.	Alluvial fan- an apron-like landform found near the bottom of hill slopes. Sediments in alluvial fans change from coarse texture near their source to fine away from the source of water, mud, and rock.
Rhyolite- a light-colored, volcanic rock with silica content greater than 68 eight percent.	Andesite- a dark-colored, volcanic rock with silica content greater than 53 percent weight and less than 68 percent weight.
Paleontology- the study of past or ancient life.	Basalt lava flow – a layer of basalt (hard, dense volcanic rock) rock.
Hydrothermal- an adjective that literally means “water” and “heat”. So in this case hot water features.	Fault- a break in a rock or the earth’s crust along which movement has occurred.
Mudpots- a hydrothermal feature with water and mud.	Fumarole- a hole or vent from which volcanic fumes or vapors issue.
Seep- a place where water or other fluids ooze from the earth.	Glaciation- an erosion deposition process resulting from movement of glaciers across the landscape.
Earth Tremors- small movements in the earth’s crust caused by easing of subsurface strains. Same as earth quakes but not as violent.	Kame- a landform such as a mound, knob, or irregular ridge. Ice and melting ice moves and deposits sediments to form kames.
Tuff- Rocks composed of volcanic ash – often a chaotic mixture of ash (fine-grained glass), pumice lumps, crystals and rock fragments.	Sandy loam- a mixture of sand, silt, clay and organic matter. There is more sand in a sandy loam than a loam.
Vent- an opening for the escape of liquid, gas or vapor.	Seismic belt- area subject to earthquakes or earth tremors.

Yellowstone National Park is in a geologically active area in the inter-mountain seismic belt of the Rocky Mountains and is noted for outstanding geologic features resulting from volcanic activity, faulting, and glaciation. Yellowstone is one of the most active hydrothermal areas in the world. The park is world-renowned for its hot springs, geysers, mudpots, and fumaroles. Earth tremors are recorded frequently in and around the park.

Volcanic rocks associated with the 50 million year old Absaroka volcanoes and the Yellowstone volcano crop out immediately south of Tower Fall (See Geologic Map, Appendix B). Within these 50 million year old volcanic rocks are world-class fossils. Paleontological resources (fossils and their associated data) are evidence of past life. They are the basis for our understanding of the history of life on Earth, and are an integral part of our planet's biodiversity. These areas are known in the international scientific community as outstanding windows to the life of the past. The 50 million old extinct volcano, Mount Washburn (south of the Tower-Roosevelt area), as well as volcanic rocks associated with the 2.1 million, 1.3 million, and 640,000 year eruptions of the Yellowstone volcano can be viewed in this area.

From Tower Junction to Tower Fall, volcanic rocks, basalt lava flows, and the hydrothermally altered areas including Calcite Springs can be seen. Hydrothermal areas and small seeps evident in this area follow a zone of northwest-trending faults and fractures that roughly parallel the Grand Loop Road and the Yellowstone River. Hydrothermal features located in the general vicinity of the road corridor at Calcite Springs are created by the movement of hot fluids and gases along fractures and faults that emerge at or near the bottom of the canyon of the Yellowstone River. Hydrothermal features present in the Yellowstone River area include fumaroles and springs that are located below road grade, east of the road along the west river bank. Hydrothermal activity and alteration also occur along the road corridor and throughout the area, but they are small and show little activity.

Tower Fall plunges 132 feet over a cliff; the tall spires looming over the fall gave Tower its name. Impermeable lake sediments and hazardous gases are geologic concerns at the Tower Fall Trailhead location. Impermeable lake sediments provide poor structural stability resulting in small slumps and potential landslides. Poor structural stability due to these sediments can be viewed near the Tower Store and along the trail to Tower Fall. Surface runoff from asphalt, groundwater from existing septic systems and erosion by Tower Creek possible contribute to the instability of the hillside and erosion of the trail to the base of the Tower Fall. Additionally visitors who leave the trail may be at risk from high concentrations of hazardous gases from thermal vents near the Yellowstone River. These gases can accumulate in topographically low areas because they are heavier than air (*Geologic Concerns at Roosevelt, Tower Fall and the Lamar River Bridge* - Jaworowski and Heasler 2006) (See Geologic Map, Appendix B).

Visitors traveling from Tower Junction toward Tower Fall are warned not to stop under Overhanging Cliff because rocks may fall from the fractured basalt cliffs above the road edge. The uneven road at Overhanging Cliff is slumping and causes maintenance and engineering challenges. This is due to the road being built on an active landslide that is being eroded by the Yellowstone River.

Soils at the Tower Junction location were developed on alluvial fans or kames. The rock fragments in the soil are andesite and rhyolite tuff. In general, soil texture is loam at the surface, with a subsoil of sandy loam and loamy sand. Gravels, boulders and cobbles are present in the soil profiles. Soils have a moderate erosion potential. There are gentle slopes to the north and depth to bedrock is greater than 10 feet. An old stream channel runs through the Tower Junction location. Sediments deposited by ice, water, and gravity overlie the various volcanic rocks at the Roosevelt Lodge location. Roosevelt Lodge and many cabins are on old alluvial gravels deposited by torrential floods along Lost Creek. Facilities at the Roosevelt Lodge and the Tower Administrative locations were built the alluvial gravels (less than 10,000

years old). Most of the soils in the developed areas have been altered by human activity. Torrential floods can occur, such as in July 2004 when intense rain triggered debris and mudflows in the northeastern portion of the park and caused flooding in the Tower Administrative location along Lost Creek (See Geologic Map, Appendix B).

U.S. Geological Survey (USGS) geologists mapped outcrops of granitic rocks, volcanic rocks associated with the Yellowstone volcano and 50 million year old fossil-bearing volcanic rocks. Fine-grained sediments and gravels cover the volcanic bedrock at the Yancey's Hole location. Soils are developed on medium and fine-textured sediments with smaller areas of coarse sediments. The area is not prone to mass wasting. At the Tower Fall Campground location, sand and gravel cover the slopes.

Floodplains, Wetlands and Other Waters of the U.S.

Floodplain- the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands and (at a minimum) that area subject to temporary inundation by a regulatory flood.

Regulatory Floodplain- the specific floodplain that is subject to regulation by Executive Order 11988 and NPS procedures outlined in Director's Order # 77-2 Floodplain Management and the accompanying Procedural Manual #77-2: Floodplain Management. Depending upon the action proposed, one of three "regulatory floodplains" applies (100-year, 500 year, or Extreme).

Fens are areas fed by a constant supply of surface or ground water that maintains permanently saturated soils and, over thousands of years, causes thick layers of partially decomposed organic matter to accumulate. The organic soil (peat) is common in many far northern climates, and although fens occupy very little area in Yellowstone, they are an important refuge for plant and animal species that rely on permanently moist environments.

The Tower Junction location is situated on highly permeable alluvial fan deposits at the mouth of the narrow valley of Lost Creek, which drains an area of 4.6 square miles (7.4 square km). Lost Creek is a year-round creek that originates south of Tower Administrative location at Lost Lake (Martin 2006), passes over a waterfall behind the Roosevelt Lodge, flows north past the Tower Administrative and Tower Ranger Station locations, passes through a culvert under the Grand Loop Road, and then flows out onto the sagebrush flats of Pleasant Valley north of the Junction. (See Natural Resource Map, Appendix B Map) The meadows west of the Tower-Roosevelt developed area abound with seeps and springs. Lost Creek's channel has shifted dramatically over the long term, but its present location appears reasonably stable. (Floodplain Analysis Results for the Tower Junction Developed Area (Michael Martin (NPS) 2006).

Floodplains: Lost Creek is the primary potential flooding hazard associated with the Roosevelt Lodge and Tower Administrative locations (See Natural Resource Map Appendix B Map). An analysis completed in 2005 by the Water Operations Branch of the NPS Water Resources Division mapped the extent of the regulatory 100-year floodplain and found it to be within the drainage channel. The estimated 100-year flood magnitude for the 4.6 square mile watershed is 163 cubic feet per second (Floodplain Analysis Results for the Tower Junction Developed Area (Michael Martin (NPS) 2006). None of the existing facilities in the Tower-Roosevelt area are located within a regulatory floodplain except for a short stretch of the unimproved wagon road to the Yancy's Hole location and equipment storage area in the south portion of the Tower Administrative location. This conclusion is based on repeated modeling that indicates the Lost Creek channel has sufficient capacity to convey the 100-year flood without being overtopped. The relatively large channel capacity is probably a result of forming under different climatic conditions. Localized precipitation-triggered debris flows in the Tower-Roosevelt area are a main potential geologic concern (See Geologic Hazard Map Appendix B). Debris-rich flows are known to occur in and around Yellowstone National Park and are a concern for development at the toe of steep slopes, including the Roosevelt Lodge and the Tower Administrative locations. Additionally, the steep gradient of the channel could result in high velocity flows.

Wetlands and other Waters of the U.S.: An inventory of the Tower-Roosevelt area completed during the summer of 2005 found 26 sites classifiable as wetlands or waters of the U.S. (24.4 out of 225.5 acres surveyed) (See Natural Resource Maps, Appendix B). Each wetland community was classified according to the U. S. Fish and Wildlife Service manual *Classification of Wetlands and Deepwater Habitats of the United States*, commonly referred to as the "Cowardin Classification System." Following this classification system, wetlands and other waters of the U.S. were mapped within the Palustrine and Riverine class.

The Palustrine wetlands within the survey area included forested wetlands (wetlands with 30% or greater tree canopy cover), non-forested meadows, depressions, and riparian wetlands (wetlands adjacent to a stream). Most of these wetlands have standing water for part of the growing season, thus assisting with water storage. One of the wetlands was permanently saturated with water or had standing water all year. In our region, drier sites are more likely to be invaded by non-natives, especially wetlands with a disturbance regime. For example, wetlands around the Tower Junction location have been highly impacted by prior human activities, wildlife, and the horse operations. Due to the past disturbances, these wetlands have many established invasive exotic plant species such as smooth brome, Canada thistle, clover, Kentucky bluegrass, and timothy (Pecha 2005). Fifty-four percent of the wetlands were altered as a result of previous developments, human impacts and road building. In one case, floodplain wetlands were partially buried by a roadbed. A hydrothermally-influenced wetland associated with Nymph Spring is located east of the Roosevelt Corral location. Hydrothermally influenced wetlands are uncommon, especially in this portion of the park.

The wetlands of most significance in the Tower-Roosevelt survey area are the forested wetlands. Forested wetlands provide structural diversity for wildlife and the tree canopy provides cooler shady conditions that sometimes results in a different assemblage of wetland species than might be found in sunnier conditions. The forested wetland near Yancey's Hole location is part of a larger wetland complex that continues beyond the planning boundary. Some of the wetlands outside of the planning boundary appear to be accumulating organic soil and may in the distant future become peatland fens. However, this was not found in the wetlands within the Tower-Roosevelt planning area (Pecha 2005, Anderson 2008).

Waters of the U.S. and riverine wetlands within the planning boundary include Lost Creek, Yancey's Creek, and an unnamed creek. Lost and Yancey's creeks are gravel bottomed perennial streams that flow all year. The unnamed stream originates in a seep and also flows year round. An ephemeral tributary to Lost Creek is also present and carries water during the spring runoff but is dry for much of the year.

Vegetation and Rare Plants

Ecotone- the transition zone between two different plant communities.

Steppe- a non forested region dominated by low shrubs and grasses.

Vegetation: The vegetation in the Tower-Roosevelt area is a complex mosaic of forest, wetlands, meadows, and sagebrush steppe. Roosevelt Lodge and nearby cabins are nestled in an open mature Douglas-fir (*Pseudotsuga menziesii* var. *glauca*) forest, with trees continuing to the south. Stretching to the north, and east towards the Roosevelt Corral location is an interfingering of small stands of trees including both Douglas-fir and lodgepole pines (*Pinus contorta* var. *latifolia*), meadows, and small shrub areas dominated mostly by black chokecherry (*Prunus virginiana* var. *melanocarpa*). Sagebrush steppe becomes the dominant vegetation type in the vicinity of the Tower Junction location with mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*) as the most conspicuous species. The Tower Ranger Station and Tower Administration locations are also in this complex of vegetation types with the addition of small aspen (*Populus tremuloides*) stands and riparian wetlands immediately adjacent to Lost Creek. The Tower Fall campground location is situated mostly in forest which is dominated by lodgepole pine and the Tower Fall Trailhead location is dominated by Douglas-fir. Meadows are scattered through the forest along with some small wetlands. The Yancey's Hole location is on the ecotone between the meadow/sagebrush steppe in Pleasant Valley and a forested wetland dominated by Engelmann spruce (*Picea engelmannii*).

Exotic Vegetation

Noxious weed- any plant designated by a federal, state, or county government to be injurious to public health, agriculture, recreation, wildlife, or any public or private property.

Non-native vegetation- plant species that are not part of the original flora of the park.

Invasive species- non-native plant species that are moving into and potentially replacing native vegetation.

At least 218 species of non-native plants are known in Yellowstone National Park (NPS, 2008). Over time noxious weed species have become established in the area that currently include bull thistle (*Cirsium vulgare*), musk thistle (*Carduus nutans*), hound's-tongue (*Cynoglossum officinale*), and Dalmatian toadflax (*Linaria dalmatica*). Another noxious species, tall buttercup (*Ranunculus acris*), was recently discovered in the NPS corral in the Tower Administration location along with another non-native species,

water speedwell (*Veronica anagallis-aquatica*). The area also has large and expanding populations of many other invasive non-native species including Loesel's tumbledustard (*Sisymbrium loeselii*), madwort (*Asperugo procumbens*), European stickseed (*Lappula squarrosa*), pale alyssum (*Alyssum alyssoides*), bulbous bluegrass (*Poa bulbosa*), and blue scorpion-grass (*Myosotis micrantha*), especially in the vicinity of the Roosevelt Corral location and along the horse trails and wagon roads. Long term management concerns in the area include the expansion of both noxious and other established non-native plant species and the establishment of additional non-native species. The presence of the corral operations complicates this problem. Even though stock is being fed certified weed-free products, this certification only prevents the noxious weed species recognized from that particular county from being present. Many non-native species can still be introduced including species that are recognized as noxious by other jurisdictions, or that may in the future be recognized as noxious species.

Rare Plants

Inflorescences—the arrangements of one or more flowers on a floral axis (stem).

Each of the adjacent states of Wyoming, Montana, and Idaho maintain lists of rare plant species or “plant species of concern”. Because the Tower-Roosevelt area is located entirely within Wyoming, the primary document used during the 2005 rare plant survey of the Tower-Roosevelt area was the Wyoming Natural Diversity Database, November 2003, *Wyoming Plant and Animal Species of Concern* list. The Montana and Idaho lists were also consulted.

The rare plant survey within the Tower-Roosevelt survey area yielded two Wyoming species of concern, bristly-stalked sedge (*Carex leptalea*), and Suksdorf's broomrape (*Orobanche ludoviciana* var. *arenosa*) (Whipple, 2006). Areas would be resurveyed for rare plants if the *Wyoming Animal and Plant Species of Concern* list undergoes significant changes.

Bristly-stalked sedge is located in the forested wetland immediately adjacent to the Yancey's Hole location. The population appears to be more extensive further into the wetland to the south but the exact boundaries were not determined in 2005 outside the designated planning boundary. This species is dependent on saturated forested wetlands and may have occurred closer to the cookout area before disturbance in the area. Rattlesnake fern (*Botrychium virginianum*) historically was collected in the forested wetland at the Yancey's Hole location in 1966. This is the only known collection of this species within the park. Rattlesnake fern may persist in the vicinity, though it was not identified in 2005 within the survey area.

Suksdorf's broomrape was found in two sites on the northwest side of Tower Junction location in the sagebrush steppe. One site is on the slopes of a small hill and the other site is in an area that was previously disturbed and is now dominated by mountain big sagebrush. Broomrapes are root parasites that do not flower every year, and the inflorescences do not necessarily appear immediately adjacent to the host species (often mountain big sagebrush), so the area occupied by the broomrape could be more extensive. (Whipple, Jennifer. 2006) Suksdorf's broomrape is a root parasite and mitigation for this species is not possible since the host plants would be destroyed.

Wildlife

Ungulate- animals that are mammals having hooves; for example, bison, elk, bighorn sheep.

Yellowstone has documented 67 species of mammals, more than 300 species of birds, 13 species and subspecies of native fish, five species of nonnative fish, six species of reptiles, and four species of amphibians (Yellowstone Resources and Issues Handbook 2007). Among the 67 species of mammals, there are seven native ungulates and two bear species. The Tower-Roosevelt area is within the habitat and range of the ungulate population of Yellowstone. There are also small mammals and a wide variety of birds.

Mammals: Mammals living in and around the Tower-Roosevelt area include bison, elk, moose, bighorn sheep, mule deer, whitetail deer (scarce), pronghorn, black and grizzly bears, cougars, coyotes, bobcats, and small mammals such as Uinta ground squirrels, pocket gophers, and jackrabbits.

Bison: The 2008 summer bison population for Yellowstone was approximately 3,000 bison, with 1,500 bison in the Northern Range. Bison are commonly seen in and around the Tower-Roosevelt area. The area serves as both year-round habitat for adult males as well as wintering range for mixed groups (bulls, cows and calves). Blacktail Deer Plateau (west of the Tower-Roosevelt area) is a major wintering range for bison. Movements of bison between winter range areas of Blacktail Deer Plateau and Little America (northeast of the Yellowstone River) and the Lamar Valley occur on either side of the Tower-Roosevelt area.

Elk: The northern Yellowstone elk herd is one of the largest free-ranging herds in North America. Habitat in the Tower-Roosevelt area, with mixed forest and grassland, is ideal for elk. Rutting season occurs during September and October, and bulls tend to seek open meadows to be highly visible and maintain their harems (groups of elk cows). The meadows are also used for calving. Population counts show the elk population on the Northern Range, inside and outside the park, has decreased four to nine percent annually since 1994. Predation by wolves and other large carnivores, hunting of elk migrating outside the park, and drought effects are factors contributing to this trend (Barber et al. 2005, Hamlin 2005, Vucetich et al. 2005, White and Garrott 2005).

Moose: In the 1970s, an estimated 1,000 moose inhabited the park. It is estimated that less than 500 moose currently live in the park (Yellowstone Resources and Issues Handbook 2007). Moose populations decreased after the fires of 1988 that burned important winter habitat (i.e., mature spruce/fir forests) in the northern portion of the park (Tyers and Irby 1995, Alces 31:35-43). Moose have been seen in the Tower-Roosevelt area, from Floating Island Lake west of Tower to Antelope Creek south of the Tower Fall Trailhead location, but good moose habitat—riparian bottom lands with mature spruce/fir slopes—is not abundant in the area.

Bighorn Sheep: A small resident band of ten to twenty bighorn sheep frequent the cliffs east of Calcite Springs across the Yellowstone River and have their lambs there. Both resident and migratory sheep use the area. Typical habitat for Bighorn Sheep is steep rocky cliffs. In the Tower-Roosevelt area, this habitat exists along the Grand Canyon of the Yellowstone River. During the autumn, ewes are observed near the Tower Fall Trailhead location, where they graze and move along the road as they migrate from Mount Washburn to Mount Everts.

Mule Deer: Mule deer are often seen in the Tower-Roosevelt area in the summer months, as individuals or in small family groups, but they cannot survive winters with deep snow at this elevation. The population growth rate appears to be increasing. Less severe winters in recent years may contribute to their increase in the area (Yellowstone Resources and Issues Handbook, 2007).

White-tailed Deer: White-tailed deer are native to the northern Rocky Mountains but have never been abundant in or near Yellowstone. The occasional white-tailed deer is seen in the Tower-Roosevelt area.

Pronghorn Antelope: Pronghorn antelope frequently use the area around the Tower-Roosevelt area during the summer. Yellowstone pronghorn antelope are partially migratory, with more than 70 percent of the population migrating to summer areas between Mount Everts and the upper Lamar Valley. Sagebrush-grassland areas near the Tower Junction location are used by migratory pronghorn antelope during the migration, fawning, and initial rearing periods.

Black Bear: The Tower-Roosevelt area is mostly medium and low quality bear habitat in the spring, summer, and fall based on vegetation present. However, the presence of winter-killed ungulate carrion and elk calving areas in the spring and early summer significantly increase the value of the area to bears during these seasons. Black bears are known to den in the rocky cliffs near the Yancey's Hole location and on the steep slopes of the Tower Creek drainage near the Tower Fall Campground. Yellowstone scientists estimate 500–650 black bears live in the park (Yellowstone Resources and Issues Handbook, 2007). Before 1970, black bears were involved in more bear-human conflicts than grizzlies. However, since then, black bears have been involved in fewer conflicts because regulations prohibiting the feeding of bears have been strictly enforced. Most bear-human conflicts that have occurred in recent years were in the Tower Fall Campground where bears were attracted to improperly stored human foods.

Due to the very low level of human-caused black bear mortality, benign encounters between bears and park visitors are common. After frequent exposure to visitors, bears often habituate to the presence of people. Habituated black bears frequently forage for native foods in roadside meadows in the area from Floating Island Lake to the Tower Fall Trailhead location and the Yellowstone River Bridge, causing large traffic jams as park visitors stop to view and photograph bears. A major bear management challenge in the Tower-Roosevelt area is managing park visitors so that they do not approach or feed habituated bears.

Grizzly Bear: The park is responsible for protecting grizzly bear populations and habitat as mandated by the Yellowstone Park Act (1872) creating the park, the National Park Service Organic Act (1916), the National Environmental Policy Act (1969), the Endangered Species Act (1973) (EIS), and the National Parks Omnibus Management Act (1998). National Park Service policy mandates that the park perpetuate native animal populations as part of the natural ecosystem and protect native animal populations against destruction, removal, harassment, or harm through human actions (NPS 1998, 1991). A recovery plan for grizzly bear populations in the lower forty eight contiguous United States was implemented because grizzly bears were listed in 1975 under the Endangered Species Act (USFWS 1982). The plan was developed to provide direction for the conservation of grizzly bears and their habitat to federal agencies responsible for managing land within the recovery zone. That same year, YNP completed an Environmental Impact Statement (EIS) for a grizzly bear management program specifically designed to recover the subpopulation of grizzly bears inhabiting the park (NPS 1982).

Management of grizzly bears in YNP has been successful in enabling grizzly bear recovery and reducing bear-human conflicts (e.g., property damage, incidents of bears obtaining human food, bear-inflicted human injuries) and human-caused bear mortalities in the park (Gunther 1994, Gunther and Hoekstra 1998, Gunther et al. 2000, Gunther et al. in press). The U.S. Fish and Wildlife Service removed grizzly

bears in the Greater Yellowstone Ecosystem from the Federal List of Threatened and Endangered Wildlife on April 30, 2007.

Grizzly bear activity, cub production, habitat quality, and conflicts with people occur near the Tower-Roosevelt area (Gunther et al. 1998). Based on vegetation cover types, the area within 1.9 miles (3 km) of the Tower-Roosevelt area is medium and low quality grizzly bear habitat. However, the presence of winter-killed ungulate carrion, elk calving areas, and wolf-killed ungulate carcasses significantly increases the value of the area to bears (Robison and Gunther 1996).

Cougars: Cougars (mountain lions) are common residents of the Northern Range and occur in Tower-Roosevelt area. Based on studies of radio-marked cougars conducted from 1987 to 2006, each year about four cougars are expected to have home ranges that encompass these areas. Four cougar dens were documented within five miles of the Tower-Roosevelt area during the 1987 to 2006 study (Murphy 2008). On the Northern Range, cougars prey primarily on elk calves and mule deer, and use conifer forests and rocky areas extensively.

Other carnivores: Other carnivores in the area include coyotes, red foxes, bobcats, raccoons, pine martens, badgers, weasels, and mink. Observations of coyotes are common. Badgers are occasionally seen digging for Uinta ground squirrels in nearby meadows.

Fish: Fish, both native and introduced, are an important component of the park's wildlife. The Yellowstone fishery is comprised of 13 native and five introduced species, including the native westslope and Yellowstone cutthroat trout, longnose dace, mountain whitefish, arctic grayling, longnose sucker, and introduced brown, brook, and rainbow trout. This mixture provides high-quality angling opportunities for visitors as well as food for birds, otters, grizzly bears, and other wildlife. Introduced brook trout are found in Lost Creek, Yancey's Creek, and Elk Creek in the Tower-Roosevelt area. These streams are high priority targets for native cutthroat trout restoration in the future.

Reptiles and Amphibian: The U.S. Geological Survey's Amphibian Research and Monitoring Initiative and the National Park Service's Inventory and Monitoring program conducted amphibian and reptile surveys from 2000 to 2003 (Patla and Peterson 2004). Four species of amphibians (Columbia spotted frog, boreal chorus frog, boreal toad, blotched tiger salamander) and six species of reptiles (intermountain wandering garter snake, prairie rattlesnake, bull snake, valley garter snake, rubber boa, and northern sagebrush lizard) were found to be present in Yellowstone. The inventory looked at random catchments; the closest to the Tower-Roosevelt area was in the vicinity of Pleasant Valley (north of the Tower Junction to Yancey's Hole locations), where boreal chorus frogs and Columbia spotted frogs were found. The Fisheries and Aquatics Section of the Yellowstone Center for Resources conducted amphibian surveys in the Elk Creek drainage near the Yancey's Hole location during 2006–2007. Most of these surveys took place north of the Grand Loop Road. Surveys were conducted in wetlands designated by the National Wetland Inventory. Habitat is suitable for the same four species above and for adult amphibians in wetlands in the immediate vicinity of the Tower-Roosevelt area, though surveys were not conducted there. Breeding populations of three amphibian species were observed during the Elk Creek survey; the blotched tiger salamander, Columbia spotted frog, and boreal chorus frog. The nearest breeding area for amphibians is immediately across the Grand Loop Road, north of the Tower Ranger Station location, where the Columbia spotted frog was observed to breed. Boreal toads were the only amphibian species in the park not observed during the Elk Creek survey, but they may be present because of their wide distribution. Boreal toads have limited areas where they breed; these areas usually include waters with some hydrothermal inputs. The wandering garter snake was the only reptile species observed in the Elk Creek drainage survey.

Birds: A wide variety of birdlife is found in the Tower-Roosevelt area. Some of the birds observed are mountain chickadee, western tanager, red-tailed hawk, Hammond's flycatcher, American crow, common raven, Williamson's sapsucker, red-naped sapsucker, warbling vireo, yellow-rumped warbler, chipping sparrow, mountain bluebird, northern flicker, vesper sparrow, savannah sparrow, green-tailed towhee, Brewer's blackbird, Brewer's sparrow, Wilson's snipe, ruby-crowned kinglet, brown creeper, red-breasted nuthatch, hairy woodpecker, Clark's nutcracker, killdeer, Cassin's finch, red crossbill, MacGillivray's warbler, and rufous hummingbird (Yellowstone Bird Report, 2008). Harlequin ducks nest on the Yellowstone River near the Tower Junction location. Peregrine falcons and ospreys nest near Tower Fall. Bald eagles winter throughout the Northern Range. Two to twelve bald eagles winter in the Tower-Roosevelt area, depending on winter conditions. The U.S. Fish and Wildlife Service removed bald eagles in the Greater Yellowstone Ecosystem from the Federal List of Threatened and Endangered Wildlife on April 30, 2007.

Threatened and Endangered Species

Canada Lynx: Historic information suggests that lynx were present but uncommon in the park from 1880 to 1980 (Murphy et al. 2004). No lynx were detected in the Tower-Roosevelt area during a lynx survey conducted 2001–2004, or during cougar surveys conducted 1988–1992 and 1998–2007. A 30-acre area of potential lynx habitat occurs within 328 feet (100 m) of the Tower-Roosevelt area, but it is not a suspected travel corridor for lynx (Murphy 2007). The 7,600-acre Tower Creek lynx analysis unit (LAU) occurs primarily to the south and west of the Tower Junction location. It does not encompass the Tower Junction, Roosevelt Lodge, or Yancey's Hole locations.

Gray Wolf: Gray wolves were native to the Yellowstone area when the park was established in 1872. Historically hunted for their hides and as predators, they were eliminated from the ecosystem by the 1930s. The United States Fish and Wildlife Service released an environmental impact statement on wolf reintroduction in May 1994. In 1995 and 1996, 31 gray wolves from Canada were released in the park. As of December 2007, 11 packs with 155-160 wolves were residing largely in the park.

The park's Northern Range is important habitat for wolves and wolf use in the vicinity of the Tower Junction location is heavy. Mid-winter breeding has centered in this general area, where four packs currently den and use rendezvous sites. Many elk kills occur in the Tower-Roosevelt area, including the Tower Junction location. Most of the kills made during winter were found near the Lamar River and Pleasant Valley. The gray wolf was delisted in March 2008, but a federal court reinstated Endangered Species Act protection in July 2008.

Natural Soundscapes

Although natural soundscape monitoring has not been conducted in the Tower-Roosevelt area, current activities create sounds typical of road travel corridors and developed areas with normal operations. These sources of non-natural noise are generally acceptable noise. The area is quiet enough that noise is not of concern for local resources and values. In the summer, traffic noise is the greatest from trucks and motorcycles and likely reaches up to several miles from the road corridors. The road from Mammoth to the Northeast Entrance remains open to wheeled vehicles in the winter and traffic is frequent through the Tower Junction location. Noises from construction projects can affect the natural soundscape. The natural soundscape of this area would include the common sounds of wind in the vegetation, animal

vocalizations (bird songs, insects buzzing, elk bugling, wolves howling, bison grunting), thunder, rain and flowing water sounds of waterfalls and rapids.

CULTURAL RESOURCES

All Cultural resources maps are referenced in Appendix B.

Historic property—a district, site, building, structure or object significant in the history of American archeology, architecture, culture, engineering, or politics at the national, state, or local level.

Yellowstone National Park has many cultural resources, including archeological sites, historic districts, buildings, structures, cultural landscapes, and ethnographic resources. Section 106 of the National Historic Preservation Act of 1966 (NHPA) provides the framework for federal review and protection of cultural resources, and ensures that they are considered during federal project planning and implementation.

Archeological Resources

The park's archeological sites provide evidence of human occupation for approximately 11,000-13,000 years. These tangible remains are viable means of understanding past cultures without written records and provide the basis for continued scientific research.

An archeological inventory was carried out in October 2004 in the Tower Ranger Station, Roosevelt Lodge, and Yancey's Hole locations in conjunction with the Tower-Roosevelt Comprehensive Plan (Dowd et al (ArchaeoLOGIC USA) 2005).

Roosevelt Lodge, Roosevelt Corral and Tower Junction locations have been surveyed intensively by multiple inventories, including:

- An intensive archeological survey conducted in 1990 in the Roosevelt Lodge and Roosevelt Corral locations (Cannon and Phillips 1991).
- The Roosevelt Lodge Sewer Upgrade Project Area, Class III Archeological Inventory Results (Aaberg et al. 1995).
- An archeological inventory conducted in 1998 in and around the Roosevelt Corral location in conjunction with concessions projects, particularly the Roosevelt Water System Project (Aaberg and Crofutt 1999).

The Roosevelt Lodge, Roosevelt Corrals and Tower Junction locations: The 1991 survey recorded two prehistoric lithic scatters within and adjacent to the Tower Junction, Roosevelt Lodge and Roosevelt Corral locations that were determined eligible for inclusion in the National Register of Historic Places (WY SHPO concurred, November 15, 1996). These sites have had partial data recovered (See Cultural Resource Map, Appendix B Map).

Tower Ranger Station Location: No prehistoric sites were identified during the 2004 inventory. The Tower Ranger Station (circa 1908) and other contributing elements to the historic district may have

associated subsurface archeological components. The report states, "The alluvial nature of the deposits in the Tower Ranger Station location makes buried subsurface deposits a distinct possibility there. Subsurface 20th century historic archeological deposits could exist that contribute to the historic district's significance" (Dowd et al. 2005).

Tower Junction, Tower Fall Trailhead and Tower Fall Campground Locations: Site-specific surveys have been conducted along the Grand Loop Road between Tower Junction and Canyon Junction. This survey was conducted for the Canyon Junction to Tower Junction Road Improvement project that included 18.5 miles of road edges. In 1995, the Office of the Wyoming State Archaeologist conducted an intensive pedestrian inventory of up to 328 feet (100 m) on either side of the road (unless prevented by topographic barriers) that identified both previously recorded sites and undocumented archeological resources. One prehistoric site near the Tower Fall Trailhead location was identified and determined not eligible for the National Register. A Class III resource inventory of the Tower Fall Campground road was completed in May 2003 to identify and evaluate resources for the National Register that might be impacted by road improvements. No new sites were identified, but a file search indicated that two previously recorded and eligible sites occur within the Tower Fall Campground location. The most important site in this area is a small surface lithic scatter with a buried prehistoric campsite component from the late archaic period and two surface scatters of historic trash. The prehistoric component of the site is eligible for the National Register.

Yancey's Hole Location: Archival research and field survey information from the 2004 survey (Dowd et al. 2005) located two previously recorded sites near the Yancey's Hole location, one prehistoric and the other historic.

The prehistoric site is located in the same vicinity of the Yancey's Hole location. The site was first recorded in 1989 by the Midwest Archeological Center as a surface scatter of obsidian and chert flakes. Shovel testing was conducted in the 2004 survey to determine National Register eligibility. Shovel pit tests turned up additional prehistoric artifacts, including obsidian and chert flakes and fire-cracked rock. The site appears to have been used for a short duration. This site has been determined eligible for the National Register.

John Yancey erected a rustic hotel in Pleasant Valley in 1884. Remains of the hotel are evident in a structural stone foundation at the base of a grassy slope. The foundation is 25 by 30 feet, constructed from fieldstones (Dowd et. al. 2005). This site is eligible for the National Register, but has not yet been inventoried.

Historic Resources

Yellowstone's historic resources reflect a number of historical themes, including the growth of tourism, Yellowstone as a "proving ground" for America's national park system, army protection and management of the park's resources, and the park's pioneer road transportation system. The stage road from Gardiner, Montana, brought European settlers and pioneers, especially gold miners, through the area on their way to Cooke City, Montana (Yellowstone Resources and Issues Handbook 2007). There are three historic districts within the Tower-Roosevelt area: Grand Loop Road Historic District, Roosevelt Lodge Historic District, and Tower Junction Ranger Station Historic District. The following discussion chronicles a history of the project area, with some descriptions of historic districts.

Grand Loop Road Historic District: The Grand Loop Road was listed on the National Register in 2004. The period of significance for the Grand Loop Road Historic District spans from 1872, when Yellowstone National Park was established and the idea of building roads was conceived, to 1944, after the completion of the Grand Loop Road. The significance of the roads is based on three criteria: A) their contribution to the broad pattern of Yellowstone history; B) their association with a significant person (Hiram Chittenden); and C) the distinctive characteristics of the road elements and structures. A systematic survey of the road through the Tower-Roosevelt area was conducted in 1997 (Historic American Engineering Record). Documentation of the historic bridges, retaining walls, box culverts, masonry culvert headwalls, and other landscape elements was combined with information from the historic resource study, *The History of the Construction of the Road System in Yellowstone National Park, 1872–1966* (Culpin 1994) and used to evaluate the historic district. All prehistoric and historic archeological sites and historic structures, including road features, were evaluated for National Register status. Consultation with the Wyoming State Historic Preservation Office provided concurrence on the National Register eligible archeological sites and structures found within the area of potential effect along the portion of the Grand Loop Road over Dunraven Pass between Tower Junction and Canyon Junction.

Roosevelt Lodge Historic District: (see Cultural Resource Map Appendix B)

National Register Information: Roosevelt Lodge Historic District was listed on the National Register of Historic Places on April 4, 1983. It is shown on the Cultural Resources map in Appendix B. This district supports the park's nationally significant role in the areas of NPS development under Criterion A, in the areas of education and the accommodation of guests. Under Criterion A this historic district is associated with the historic context, "Development of Concessions, Yellowstone National Park: 1827-1955," under the Multiple Property listing *Historic Resources of Yellowstone National Park, 1872-1955*. Specifically, the role of the district is in the areas of education and guest accommodations. The historic district is also locally significant under Criterion C in the area of architecture. It embodies the distinctive characteristics of the Rustic style. The buildings were the focus of the 1983 nomination and the historic district boundary was drawn accordingly. The period of significance given the district was 1906-1942; beginning with the establishment of Camp Roosevelt and ending with the conclusion of an extensive period of development. In September 2008, the Wyoming State Historic Preservation Office concurred that cultural landscape features and patterns were also eligible as contributing to the historic district under the Multiple Property Listing *Historic Park Landscapes in National and State Parks*. It is also associated with the historic context, "Historic Landscape Design of the National Park Service, 1916-1942." This required an expansion of the historic district boundary to the north to include these features and patterns. It also required an extension of the period of significance to 1948 in order to include the removal of the barn and corral dating to the Wylie era, and the relocation of housekeeping cabins in their place, as was customary for the NPS during the 1920s and 1930s. This change was the final stage of fulfilling the 1939 development plan for the Roosevelt Lodge area. The cultural landscape features and patterns are discussed in the next section of this chapter.

History and Historic Buildings: Historically, the Roosevelt Lodge area was used by fur trappers, explorers, and Native Americans who followed the Bannock Trail. The scenic qualities and accessibility to excellent fishing waters prompted this area to be developed as an overnight stopping point (NR Nomination Form). Located at an important crossroads, Camp Roosevelt was a convenient yet picturesque stopping place for the Wylie Semi-Permanent Tent-Camping Company, which conducted economical stagecoach tours of a string of tent camps that were located about a day's travel from one another. While there were interesting geologic formations within walking and hiking distance, Camp Roosevelt was not developed around a particular feature such as were the lodges at Old Faithful, Canyon and Lake. Camp Roosevelt

historically provided a place for “enjoying outdoor life,” as a 1907 advertisement notes. It was modest and secluded, taking advantage of bathing in the small Nymph Hot Springs, access to riding and hiking trails, and good fishing.

In 1919-1920, this Wylie Tent-Camp was the first of the camps to be converted into a lodge. The lodge system developed throughout the park during the 1920s and 1930s in response to the advent of the automobile. Tents were converted to frame and log structures that could be accessed by personal automobiles rather than stagecoach tours. As a variation from other park lodges however, park officials recorded their intention of “making this camp something on the order of the ‘dude ranch’ of the west,” capitalizing on this popular form of tourism at that time. What this meant for Roosevelt Lodge was that the barn and corrals would remain an important land use and the architectural style would be unadorned as a more vernacular version of rustic. In line with the “dude ranch” experience, this also meant that horseback riding and fishing opportunities would be highlighted. A typical dude ranch was composed of little groups of cabins, corrals, and bunkhouses. They were usually located in remote, picturesque areas. Both of these characteristics were present at Roosevelt Lodge.

Roosevelt lodge, the largest structure within the complex, is the smallest of all the park lodges. The front porch was a focal point for relaxing, informal socializing, and viewing of the distant mountain range. In 1918, the NPS promoted the use of parks for field laboratory work and as a place for students to conduct studies of natural features. The daily nature field trips for guests and lectures on natural resource topics became the forerunner to the interpretive and educational programs in the park today.

Adhering to 1930s-40s Master Plans, a more orderly and higher density “housekeeping cabins” area was added to the area northwest of the lodge. In 1936-37 the housekeeping cabin area developed by relocating 70 frame cabins from Mammoth Lodge, which had been recently dismantled. This plan, as well as a shift in the Lost Creek’s course, spurred the removal of the original barn and corrals. The new barn and corrals in their new location were not built until the late 1950s. A less orderly, lower density cabin area with larger cabins was built according to the 1930s-40s Master Plans to the northeast of the lodge. North of the lodge is a cluster of rustic, logs-out, frame cabins arranged in 3 orderly rows. This cluster had assumed its general form, with most of the current buildings in place, by at least 1929. There is a cluster of cabins, most of which are log structures, arranged at the base of a steep slope some distance east/northeast of the lodge. This early group of tourist cabins was in place by the early 1920s. The cluster immediately northeast of the lodge generally forms a wide “v” because most of its cabins are arranged at an angle. In total, there were four separate groupings of cabins. Many of the cabins added to Roosevelt Lodge during this time were brought in from other areas of the park, representing different construction types. To this day, the Roosevelt Lodge Historic District preserves some aspects of the earlier tent camp such as in the organization of a central dining and gathering facility surrounded by clusters of individual camping units.

The Roosevelt Lodge location has become a repository for historic cabins. Some cabins have been moved into the area from other parts of the park, while others were constructed on site between the 1920s and 1940s. The historic integrity of the moved cabins is considered intact despite their change in location. In 2005, the Wyoming State Historic Preservation Office gave a consensus determination to list 30 more cabins at Roosevelt in the historic district, though no formal addendum to the National Register nomination has been made. Although the district does not contain any exceptional or unique examples of rustic architecture, it does preserve the types of cabin construction used throughout the park.

Individually, many of the buildings (other than the lodge) do not qualify for the National Register, but collectively they contribute to the historic district, which is now composed of 124 contributing buildings and six non-contributing buildings. Roosevelt Lodge and the surrounding cabins and service buildings are all within the historic district. A Historic Structures Report for the Roosevelt Lodge (1997) documents the history, contributing features, and treatment plan for the district. Cultural landscape features and patterns that contribute to the district are described in the Cultural Landscape impact topic following this section.

Tower Junction Ranger Station Historic District:

National Register Information: The Tower Junction Ranger Station Historic District was determined to be eligible for the National Register in 1997. It is shown on the Cultural Resources map in Appendix B. Historic survey forms record the district as eligible at the local level under National Register Criteria A. The area of significance for the district is “government” and the historic context is “Administrative and Concessions Development in Yellowstone National Park.” The period of significance for the district is 1914 to 1945. In September 2008, the Wyoming State Historic Preservation Office concurred that cultural landscape features and patterns were also eligible as contributing to the historic district under the Multiple Property Listing *Historic Park Landscapes in National and State Parks*. It is also associated with the historic context, “Historic Landscape Design of the National Park Service, 1916-1942.” The period of significance was revised to begin earlier, at 1907; beginning with the establishment of the soldier station on that site in 1907. The historic district boundary was expanded to incorporate contributing landscape features and patterns; namely the horse corrals, the open space in front of the ranger station, and the creek.

History and Historic Buildings: Sited where Lost Creek crosses the Grand Loop Road, near the intersection with the Northeast Entrance Road, the Tower Junction Ranger Station Historic District is a government administrative area that also has a visitor contact function. The former ranger station (now the ranger residence) sits prominently near the road, overlooking the broad sweeping views of meadow and forest mosaics of Pleasant Valley within the Northern Range. It provides a NPS ranger presence at this part of the park. The former station has a simple setting that is relatively uncluttered; its foreground is open space with a simple entry. A very heavy and overly tall planting of large coniferous trees (planted in the 1940s) has diminished the presence and weight of the former station in this area. The district developed incrementally since 1907, and has a variety of buildings from different times in the park’s history; a former army soldier station, a former road camp, and park operations during the lean years of WW II. It has always retained an administrative and operational function for this part of the park. It has also retained the public contact component at the ranger stations. The untidiness that naturally accompanies the maintenance, housing and operational area is hidden behind a screen of Douglas-fir and aspen trees. The adjacent Roosevelt Lodge Historic District separated visually from this administrative area by a natural topographic feature, was the first development at this crossroads (1906).

The first administrative development at this junction occurred the next year, in 1907, when the original Tower Falls Soldier Station, established near Calcite Springs Overlook in 1901, was abandoned and the detachment moved to the location of the inventory unit. Between 1914 and 1916, the Interior Department constructed the building currently known as the ranger’s residence. This building is described as the “Tower Falls Soldier Station,” Building No. 78, with a capacity of five men. In 1916, other buildings recorded at this site included a stable, an officer’s quarters, and other small structures. After the establishment of the National Park Service in 1916, the use of the area remained administrative and for public contact, although the name of the station was changed from “soldier station” to “ranger station.” In keeping with an important trend to blend buildings into the landscape, the NPS transformed the

appearance of the Tower Falls Ranger Station in 1924 to the NPS Rustic Style, applying stone around the base and logs to the exterior walls, and changing the light exterior color to dark brown.

In 1926, the facilities of more than twenty park-wide road camps were recommended for improvement, one of them being at Tower Junction. There is not much information on the establishment of the road camp at Tower Junction. However it is known that some camps were established in the park as early as 1901 to feed and house personnel who constructed park roads. As part of the improvements, the current barn and (probably) the corrals were constructed in 1929. The mess hall was used as a bunkhouse until 1945 when a Civilian Conservation Corps building was moved into the site. The garage next to the ranger station was probably also a modified CCC structure. Both were constructed in the Rustic style. By 1945, all of the principle buildings were in place. The Tower Administrative location currently includes six major buildings that date to the historic period: the bunkhouse, the barn, the mess hall, the garage, the fire cache, and the ranger residence. Cultural landscape features and patterns that contribute to the district are described in the Cultural Landscape impact topic.

The following locations are not historic resources. These descriptions serve as background for the TRCP/EA.

Roosevelt Corral Location History: The corral was relocated to its present location by 1958, spurred by Lost Creek shifting course and by the goal of moving the operation away from guest cabins in 1947. A corral was developed as part of the early Wiley Camp (circa 1906) and has remained a fixture within the Roosevelt Lodge vicinity since then (Shapins 2005). However, the original corral location was to the immediate north of Lost Creek, west of the Roosevelt Lodge and part of the cabin area. The Roosevelt Corral area has been determined ineligible to the National Register of Historic Places (July 2008)

Tower Junction Location History: The existing service station was built in 1961 by the Continental Oil Company (Conoco) and it remains unchanged. In December 1952, Charles A. Hamilton approached Superintendent Lon Garrison about his plan for building a service station at the Tower Fall Trailhead location, but Garrison insisted that a station be built at the Tower Junction location instead. Prior to the service station at the Tower Junction location, there was a single pump adjacent to Roosevelt Lodge, which was a very small operation that mostly provided emergency service to visitors who didn't have enough gas to get to the next station.

Tower Fall Trailhead and Campground Locations History: The Grand Loop Road, which originally ran through what is now the Tower Fall Campground was relocated in 1930, and a new store was built adjacent to it in 1936. The interior and exterior of this building was extensively remodeled in 1959. Parts of the 1936 store remain beneath the existing store.

The first development in the Tower Fall Trailhead location area is of the same era as the Wiley Tent Camp and the Roosevelt Lodge. The first building (1916) in this general location was a repair shop and auto supply center used by the Yellowstone Western Transportation Office, particularly for vehicles coming down from Dunraven Pass that needed to cool their brakes. The building was constructed in the Tower Fall Trailhead location near the existing dormitory, next to the Tower Fall Campground, where it was on the alignment of the original road. In 1917, the Haynes Picture Shop was established. "It was the need for brake bands at Tower Fall that put Jack E. Haynes in business there." Haynes volunteered to provide the service, which ultimately developed into his profitable Tower Fall Picture Shop (Haines 1977).

The Tower Fall Campground and associated employee living quarters were built in 1922. In 1932, the Haynes Store was remodeled into a dormitory. In 1941, a new mess hall and power house were built. The dormitory was replaced by today's dormitory in 1985. The mess hall now serves as the employee recreation hall.

Yancey's Hole Location History: The foundations of what was once the Yancey's hotel and saloon were uncovered during the 2004 archeological survey. The first development was constructed in 1884, when John Yancey built a hotel and mail station in Pleasant Valley to serve travelers on the stage road from Gardiner to Cooke City. These buildings remained in operation with the addition of some other structures and corrals through 1906, when the hotel burned to the ground.

Cultural Landscapes

A cultural landscape recognizes the influence of human beliefs and actions over time on the natural landscape; it is an indicator of cultural patterns, values, and heritage. In the broadest sense, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions (NPS Director's Order-28 p.87).

The contributing features and patterns of a cultural landscape may include, as appropriate: natural systems and features; spatial organization; topography and landforms; vegetation; circulation systems and features; land use; buildings and structures; building cluster arrangement; water features; small scale features; and views and vistas. In July 2008, the existing historic districts at Roosevelt Lodge and Tower Junction Ranger Station were determined eligible through consensus with the Wyoming State Historic Preservation Office.

Roosevelt Lodge Historic District

Cultural landscape features and patterns that contribute to the significance of the district and were determined eligible in July 2008. The significance of the Roosevelt Lodge Historic District and its history is described under Historic Resources section above; serving as a basis for why the cultural landscape features, below, have been determined eligible. The Roosevelt Lodge Historic District Cultural Landscape Inventory (Shapins 2007) documented the significance and integrity of the cultural landscape features and patterns, which are described below.

Contributing Features and Patterns: Landscape patterns at the Roosevelt Lodge are representative of Rustic Style design precepts. These patterns include the siting of facilities in a natural setting, with emphasis on preserving natural features and views. Typically, the Rustic Style would achieve objectives by preserving specimen trees for dramatic effect and employing existing stands of vegetation as natural screens. At Roosevelt Lodge, the complex is sited far from the Grand Loop road, above a distinct ledge, and behind a natural screen of Douglas-firs and lodgepole pines. Through this siting, major facilities were relatively hidden from view from the road. One landmark tree was carefully preserved during the lodge construction, though it has since succumbed to age. The proximity of this tree to the lodge emphasized the lodge's picturesque setting. Finally, the lodge building itself – the dominant features of the Roosevelt Lodge landscape – was sited and oriented to take advantage of views. It was designed with a wide, spacious porch so that guests could rest while admiring the scenery of Pleasant Valley and the hills beyond. The foreground view from the porch has been compromised by an asphalt parking area. The distant views from the porch have been retained, however. Surviving small-scale landscape features include a heavy log footbridge that spans the small ditch/swale west and north of the lodge building. A peeled-log flagpole is also consistent with the Rustic aesthetic, though it appears to be a later

replacement. The over-sized log curbing and the large asphalt parking area are not contributing features of the district.

Summary of contributing patterns and features (CLI 2007):

Natural Systems and Features:

- Lost Creek
- Dry stream channel

Spatial Organization/Topography:

- Pattern of spatial organization largely determined by topography, with development at the base of slopes and obscured from sight by ridges
- Division of district into zones based on land and building use: lodge/services complex and guest accommodations cabins clusters
- Topographic features such as hills and ridges employed in screening development

Vegetation

- Secluded natural setting in area of native vegetation
- Mature stands of Douglas-fir, lodgepole pine, and quaking aspen including those used for screening development from road
- Grassy meadow with sagebrush as organizing feature
- Specimen Douglas-fir tree preserved off NW corner of lodge building
- Specimen leaning Douglas-fir in meadow

Circulation

- Two narrow entry and exit drives where they retain original narrow, informal alignment (from Roosevelt corral to main parking lot, and from main parking lot to curve where road was realigned)
- Gravel roads throughout guest cabins
- Informal footpath network throughout cabin areas
- Hiking/bridle trails leading toward Lost Lake on Lost Creek

Views and Vistas

- Pattern of setting back facilities behind natural screens of topography and vegetation
- Views from Roosevelt Lodge porch, Cabins Group C (north west cluster of cabins), and from trails behind lodge

Buildings and Structures

- NPS Rustic Style design of structures (native materials, small scale, etc.)
- Established contributing resources of Roosevelt Lodge Historic District

Building Cluster Arrangement

- Organization of district into five major building clusters, each with distinctive characteristics:
 - Lodge and services/utilitarian (center of complex)
 - Cabins group A with linear arrangement at northeast portions of district

- Cabin group B (V-shaped arrangement at center-east portion of district)
- Cabin group C (linear arrangement at north western portion of district)
- Housekeeping cabins area (formal arrangement at southwestern portion of district)

Small-scale Features

- Rustic log footbridge to Cabin Group C

Tower Junction Ranger Station Historic District

Cultural landscape features and patterns that contribute to the significance of the district and were determined eligible in July 2008. The significance of the Tower Junction Ranger Station Historic District and its history is described under Historic Resources section above; serving as a basis for why the cultural landscape features, below, have been determined eligible. The Tower Junction Ranger Station Historic District Cultural Landscape Inventory (Shapins 2007) documented the significance and integrity of the cultural landscape features and patterns, which are described below.

Contributing Features and Patterns: Landscape architectural patterns and features at the Tower Ranger Station Historic District also represent tenets of the Rustic Style employed by the NPS between 1916 and 1942. Patterns include siting facilities in a natural setting, with an emphasis on preserving natural features and views. Typically, these objectives would be achieved by preserving existing stands of vegetation as natural screens and topography. The Tower Ranger Station Historic District is divided into two zones; a visitor services zone adjacent to the Grand Loop Road and a utilities and operations zone a few hundred yards south. The more operational zone is hidden behind a natural screen of evergreens and aspen trees. The more public face or visitor services zone contains the ranger station; which was not only embellished with rustic style architectural features, but sometime in the early 1940s, trees were placed at the building corners; a common naturalistic landscaping technique of the time. The log fences in the corral are also Rustic Style features.

Summary of contributing patterns and features (CLI 2007)

Natural Systems and Features

- Lost Creek

Spatial Organization/Topography

- Pattern of special organization with development at the base of slopes and obscured by ridges
- Low ridge that visually and physically separates district from the service station and Roosevelt Lodge
- Division of district into two building cluster arrangements with two uses: visitor service and operational/residential
- General layout of corral and rustic log rail fences in corral
- Open natural area in front of and around ranger residence

Vegetation

- Location in natural setting with native vegetation: mosaic of meadow, forest, sage brush
- Screen of native vegetation that obscures view of operations
- Specimen Douglas-fir near ranger residence
- Pattern of grounding buildings through naturalistic planting (poorly executed)

Circulation

- General alignment of access drive from Grand Loop Road to Tower Administrative location

Views and Vistas

- Pattern of setting back facilities behind natural screens
- Views of natural landscape, especially Pleasant Valley from the Tower Ranger Station

Buildings and Structures

- NPS rustic style design of structures
- Buildings determined eligible to proposed district
- Consistent colors on building exteriors

Small-Scale Features

- Gas pump island

HUMAN HEALTH AND SAFETY

The NPS is committed to providing appropriate, high-quality opportunities for visitors and employees to enjoy the parks in a safe and healthful environment. Further, the NPS strives to protect human life and provide for injury-free visits. Employee and volunteers safety within the workplace for the park and concessioners is a high priority. Visitation to Yellowstone has averaged 2.8-3.1 million visitors each year from 1993-2006; most visitations occur during the summer months. Many facilities in the Tower Roosevelt area are open from May to early September. Human health and safety concerns associated with activities and services in the Tower Roosevelt area include:

- potential for increased traffic accidents
- conflicts with vehicles, pedestrians, wagons and horses
- potential debris flows into visitor and administrative areas
- contact with hazardous gases from thermal vents below the Tower Fall.
- exposure to climatic elements for visitors waiting for wagon rides on open benches

Although the Tower-Roosevelt area is small and traffic circulation is straightforward, vehicle accidents occur, visitors experience traffic congestion, and access and egress can be confusing at the Tower Fall Trailhead parking area. Parking areas at the Roosevelt Lodge and Tower Ranger Station locations do not easily accommodate oversized vehicles and can present difficulties in maneuvering and parking. Several parking areas in the Tower-Roosevelt area experience congestion. The Tower Fall Trailhead location and Calcite Springs parking areas were evaluated in the Tower to Canyon Road EA and changes were recommended to both. Tower Junction is a busy intersection where visitors make decisions relating to four directions. The Tower Junction location accommodates the entrance to Roosevelt Lodge, the existing fuel service station, Lost Creek trailhead, the junction of the road to Mammoth Hot Springs, the road to Tower Fall and Dunraven Pass, and the Northeast Entrance road to Cooke City and the Beartooth Highway.

Potential conflicts between vehicles, wagons, horses, and pedestrians are also a concern at Tower Junction where wagons and horses cross main roads in two areas. Wranglers stop traffic for each crossing.

The corral operations accommodate waiting visitors with open, uncovered benches. Visitors are exposed to the climatic elements at high elevations.

There are two separate developments in the Tower-Roosevelt area that are potentially subject to debris flow conditions; 1) western parts of the Roosevelt Lodge location (40 cabins) and 2) Parts of the Tower Administrative location (See geologic Map, Appendix B). These areas are not in the regulated 100 year floodplain. The channel is easily contained by the surrounding topography in a 100 year flood. However, if a slope failure or sediment rich debris flow occurred, the channel could possibly fill in and the flow could be re-directed into the developments (Floodplain Analysis Results for the Tower Junction Developed Area (Michael Martin (NPS) 2006)..

Harmful hydrogen sulfide gases produced by thermal vents have been identified at the base of Tower Fall waterfall near the Yellowstone River(beyond the planning boundary but within the project area) due to the concentration of gases that are heavier than air. However, the air circulation in the area prevents the gases from accumulating in most cases (*Geologic Concerns at Roosevelt, Tower Fall and the Lamar River Bridge* - Jaworowski and Heasler (NPS) 2006).

VISUAL RESOURCES

All visual resource maps are referenced in the Appendix B.

Outstanding scenic character has distinguished national parks from other natural areas and is often an integral part of their fundamental resources and values. Yellowstone's enabling legislation preserves the park as a "pleasuring-ground for the benefit and enjoyment of the people." The 1916 Organic Act that created the National Park Service sought to "conserve the scenery...and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Thomas Moran's paintings and William Henry Jackson's photographs of Yellowstone scenery were instrumental in convincing Congress to set this area aside and "preserve it from injury or spoliation."

Yellowstone National Park abounds with impressive views. Despite being one of the oldest units in the park system, most landscapes appear in their natural state. Less than two percent of the park is developed and facilities are predominantly grouped along the historic figure-eight Grand Loop Road and in a handful of small developments, leaving substantial areas of the park in their natural condition. Wide vistas of scenery such as geyser basins, with a backdrop of forest and blue sky, have attained iconic status representing not only Yellowstone, but the entire National Park Service.

Part of the allure and expectations associated with Yellowstone Park involve the impression that the park is predominantly in its natural condition. Visitors experience facilities that are grouped together and screened by vegetation, and infrastructure that does not dominate the landscape. Because the primary views are natural, built structures often stand out in contrast to the scenery. Visual quality affects visitor enjoyment and an overall perception of Yellowstone; its importance, resource conditions, and management. The architectural styles of most buildings in the Tower-Roosevelt area harmonize with the

natural environment. However, structures that are not architecturally compatible do not harmonize with the natural environment and focal viewsheds.

The Roosevelt Lodge Location: The Roosevelt Lodge location is largely screened from the Grand Loop Road by changes in topography and stands of aspen, Douglas-fir, and lodgepole pine. The road leading to the lodge ascends a small hill from the sagebrush flats and grasslands to the fringe of the forest. The lodge is visually dominant in this area and the log construction of the lodge and cabins defines the rustic character. These buildings are situated among large evergreen trees, which help blend them with the natural surroundings. The guest cabins west of the lodge have views of the Tower Administrative location and the back of employee housing that are not consistent with the area's overall rustic character.

The Roosevelt Corral Location: The Roosevelt Corral location is adjacent to the Grand Loop Road and highly visible. The utilitarian character and "Old West" flavor of the buildings define this built environment and achieve compatibility with its surrounding natural setting. The corral parking area is prominent when it is full of vehicles.

Tower Ranger Station Location The Tower Ranger Station location, including the historic ranger station, the pump-house, and the current ranger station/backcountry office are adjacent to the road and are visually dominant, but the rustic design and dark color of these buildings compliments the natural landscape.

Tower Administrative location: Buildings and maintenance vehicles in the Tower Administrative location are visible through the sparse tree cover. The NPS barn, corral, and other historic buildings and structures are rustic and blend in, while trailers and recreational vehicles used for housing are lighter in color, with reflective metallic siding, and they degrade the visual character of the surrounding area.

Tower Junction Location: The landscape surrounding the Tower Junction location reflects a transition from densely forested hills to a glacially formed valley. The Grand Loop Road descends from the west into this valley. From vantage points along the road, most of the Tower-Roosevelt area developments are highly visible. The fuel service station at the Tower Junction location is a Mission 66 building constructed of concrete blocks with a large, flat lean-to style roof. The building style and materials are distinctly different from that of the surrounding historic districts and the natural setting. Because of its prominence and the open terrain at the Tower Junction location, the fuel service station is visible from all directions including the Yancey's Hole wagon road, both day and night. Night lighting is often visible during the wagon ride for the entirety of the return trip and from the Grand Loop Road in several directions. The fuel service station parking area, which is adjacent to the entrance road to the Roosevelt Lodge location, includes a vault toilet, pay phones, and recycling containers, which minimally integrate with the natural setting.

Tower Fall Trailhead Location: The visual character of the Tower Fall Trailhead location is steep, forested slopes interspersed with meadows. Views from the Grand Loop Road through the Tower Fall location are distinctive. Distant mountains are a backdrop to the steep Yellowstone River canyon to the north, with dramatic basalt cliffs rising above the south side of the road. At the Tower Fall location, the general store and large parking area are adjacent to and visible from the Grand Loop Road. The store is a Mission 66 architectural style and is more modern than the other structures along the Grand Loop Road in the Tower-Roosevelt area, including the Tower Creek Bridge, crenellated (notched masonry) guard walls, and the Tower Ranger Station. However, the store has a low profile and is built into the hillside, which helps diminish its visual impact. Tower Fall waterfall cannot be seen from the Grand Loop Road. Visitors walk to the overlook for a view of the waterfall.

Tower Fall Administrative Location: The Tower Fall Administrative location including the dormitory, RV sites, and the small Tower Fall campground are not visible from the Grand Loop Road because of the dense trees and steep slopes. The dormitory development and associated night lighting are visible from the campground.

Yancey's Hole Location: The Yancey's Hole location is located in a grassy meadow surrounded by forested slopes. The only building visible from the Grand Loop Road is the serving shelter, and it is only visible from one short stretch of road immediately south of the cookout site. The serving shelter is visible from the wagon road when approaching the area. All structures can be seen from the Garnet Hill Trail that crosses the hill to the north and circles back through the Yancey's Hole location. Structures blend well with the surroundings, and the topography and natural views to the north give visitors to the Yancey's Hole location an impression of a remote setting.

Lightscares

Exterior night lighting in the Tower-Roosevelt area is generally at a minimum within its historic setting. However, some fixtures, such as those at the service station, create upward light pollution and horizontal glare. These fixtures are not energy efficient and do not comply with Yellowstone's lighting guidelines (2004). During the winter, there is no lighting at the Tower Junction service station, the Roosevelt Lodge, the corrals, or the Tower Fall developments because they are closed. Night lighting is not an issue at the Yancey's Hole location but visitors view the lights at the Tower Junction location on their return trip from the cookout.

VISITOR USE AND EXPERIENCE

All visitor use and experience maps are referenced in the Appendix B.

Tower-Roosevelt area has the highest percentage of visitors staying in one area for three days. Visitors who are familiar with the Tower-Roosevelt area come for its particular charm, and often return and stay for longer periods of time (YNP visitor study 2006). Of the summertime activities that visitors can book in advance, the Roosevelt horseback rides and cowboy cookouts have the highest percentage of reservations of any activities offered in the park in 2006 (YNP Visitor Study 2006).

Visitor use activities in Yellowstone are highly seasonal. June, July, and August are the months of highest use. Use in the winter months is relatively low. However winter use has increased in the park from 140,000 visitors in 2000-2001 to approximately 298,000 in 2006-2007 (NPS Public Use Statistics Office)

The Tower-Roosevelt area is a haven for wildlife-watching enthusiasts. For visitors passing through the Tower-Roosevelt area along the Grand Loop Road, the open meadows of the Northern Range provide frequent opportunities for viewing wildlife. Black bears are particularly abundant in this area due to the diverse habitat of the forest edge. Visitors often have close up views of black bears, foraging for food in the spring and summer, and causing traffic jams along the roads. The Tower-Roosevelt area is also a popular place to view grizzly bears (See Black and Grizzly Bear Sighting Map, Appendix A).

Visitor use in the Tower-Roosevelt area is based on the outdoor experience. *Expedition: Yellowstone!*, the parks curriculum based residential program, regularly uses the Tower-Roosevelt area for its outdoor education programs. Many visitors take short hikes to see petrified trees or Tower Fall with its rock spires. Hiking is popular because stunning views can be seen from most trails. There are several popular hiking

trails in the immediate vicinity of Tower-Roosevelt including Lost Lake trail, Lost Creek Falls trail, Garnet Hill trail, and Tower Fall trail. Fishing is popular in the streams and rivers. The Tower-Roosevelt area had 45 overnight Commercial Use Angler fishing trips in 2006 out of 172 (26.2%) for Yellowstone overall (YNP Visitor Study 2006). Visitors who want to fish or camp in the backcountry often go to the Tower Backcountry Office to obtain their permit or information. Cross-country skiing is popular in the winter, with several groomed ski and snow shoe trails in the Tower-Roosevelt area including Lost Lake trail, Blacktail Deer Plateau, and the Tower Fall road and Chittenden Loop.

Organized concession activities in the summer include horseback rides along designated trails, and stagecoach rides and wagon rides to the Yancey's Hole location for an evening cookout. These activities leave from the Roosevelt Corral location and are very popular with visitors, many of whom come to the area specifically to participate in them. Outfitter horse use is also popular on several trails in the area. Commercial stock outfitters in the Roosevelt-Tower area had 18 overnight trips (16.5% of the Yellowstone total) and 175 day trips (25.7% of the Yellowstone total) in 2006 (YNP Visitor Study 2006).

Visitor opportunities for interpretation of natural and cultural resources in the area are available. There are one to three evening programs a week at the Tower Fall amphitheater near the Tower Fall Campground, formal talks at Tower Fall, impromptu talks and other informal interpretation events at Tower Fall and Calcite Springs overlooks and daily roving at wildlife jams and at the Tower Fall Trailhead location. Ranger adventure hikes (fee hikes) have been conducted in the Tower-Roosevelt area once or twice a week for the past four years. Interpretation provided by concessioners involves information presented while horseback riding or on wagon rides. Interpretation is also provided through several handouts available at the Tower Ranger Station location in the backcountry office and wayside exhibits at Calcite Springs and the Tower Fall Trailhead location. (See Appendix B for more information.) The *Long Range Interpretive Plan* (2000) suggests developing a contact station/winter warming hut to provide year-round interpretation and information for visitors. It also emphasizes interpretation in context with the Northern Range (especially wolves, bears and ungulates) and human history (especially Yancey's Hole and the Wylie tent camps). The *Long Range Interpretive Plan* also recommends expanding *Expedition: Yellowstone!* and constructing a central exhibit area to provide supplementary interpretation and orientation.

Accommodations at the Roosevelt Lodge location are small rustic cabins. Many returning guests like the basic amenities and intimate atmosphere (YNP visitor survey 2006). Both visitors and staff describe Tower-Roosevelt area as being "relaxed, laid-back and affordable". Visitors appreciate the natural soundscapes the Tower-Roosevelt area offers year round. Many guests are wolf watchers and anglers. Campers will often stay at Roosevelt cabins between campground stays. The Roosevelt Lodge dining room provides meals for both guests and day-use visitors on a first-come first-served basis. Visitors relax on the large front porch where they can enjoy the view. The other overnight facility for visitors is the 32-campsite Tower Fall Campground, which is open from mid-May until the end of September.

PARK OPERATIONS

All park operations maps are referenced in the Appendix B.

Park operations consist of both NPS and concessions operations that support visitor facilities and services in the Tower-Roosevelt Area.

National Park Service Operations

The NPS provides support operations and maintenance for visitor facilities, visitor protection, and emergency services from the Tower Ranger Station and the Tower Administrative locations. NPS employee housing and administrative offices are also located there.

Maintenance Operations/Facility Management: NPS operations for the Tower-Roosevelt area are carried out by the park's Maintenance Division. Operations include maintenance of Tower Fall campground, vault toilets, water and sewage systems, building and road maintenance and garbage collection. The 32-campsite Tower Fall Campground is staffed by volunteer campground hosts who stay at the campground and do some maintenance.

During the winter, the road from Mammoth to the Northeast Entrance is plowed to provide an automobile route to Cooke City and Silver Gate. Plowing and road maintenance services are provided by the NPS.

Support facilities, consisting of many small buildings, are in the Tower Administrative location for equipment and vehicles. They include separate buildings for administrative functions, offices and equipment. Shop space for maintenance activities is scattered throughout different buildings and many supplies and materials are stored outside. There is one inside bay with restricted space for the ambulance and one for the snowplow. Other vehicles are housed outside year-round.

The 1992 Housing Plan and the 2005 Housing Management Plan recommended construction of a new maintenance facility to provide necessary vehicle, equipment, and supply storage, office space, restrooms, and meeting rooms. They also state that buildings should be screened from the Roosevelt Lodge location that is just across the creek.

The Tower-Roosevelt area has the two spring boxes for supplying drinking water and four waste water systems (three leach field type and one re-circulating type with a subsurface disposal field).

The drinking water supply for the Roosevelt Lodge, Roosevelt Corral, Tower Ranger Station, Tower Administrative and Tower Junction locations is obtained from a spring and there is 200,000 gallons of storage. Drinking water excellent quality and supply is adequate, but recent dry summers have lowered storage tank levels. Water restrictions were imposed in 1997. Further drought conditions may affect future water supplies.

The drinking water quality and supply at Tower Fall Trailhead and Tower Fall Campground locations is excellent, consisting of a spring and 100,000-gallons of storage. Water is piped approximately five miles from a spring. The Tower Fall Trailhead and Tower Campground locations water supply system cannot be used in winter because the shallow lines are susceptible to freezing.

The Tower Ranger Station and Tower Administrative locations have a separate septic tank/leach field systems as does the Tower Junction location. The Roosevelt Lodge and Roosevelt Corral locations use a re-circulating sand-filter system with a subsurface disposal field. The re-circulating sand-filter portion of the system is located east of the Roosevelt Lodge entrance road and the disposal field is located to the north, across the Grand Loop Road. The re-circulating septic system is not designed to be activated for winter use and is deactivated from October to May when facilities are closed. Its capacity to handle additional loading may need to be evaluated. The septic tank/leach fields systems for the Tower Ranger Station, Tower Administrative and Tower Junction location are also on the north side of the Grand Loop

Road. Further analysis is needed to determine if these systems could accommodate increased loads if future construction .

The Tower Fall Trailhead and Tower Administrative locations septic tank/leach field system is at capacity. The system has not shown signs of failure, but requires pumping every year due to heavy use and accumulation of grease. There are no additional areas for replacement or expansion due to topographic constraints. The leach field is east of the dormitory and sewage from the general store and public toilets is pumped by a lift station from a septic tank at the Tower Fall Trailhead location to the waste water system at the Tower fall Campground location. There is an old septic system below the store, currently used as a backup during power or equipment failures. This system has a septic tank and spray field adjacent to Tower Creek. Only the tank is used as a backup. This system could not handle high use for an entire summer, is subject to below-freezing winter temperatures, and would not meet Environmental Protection Agency standards for long-term use. Tanks are emptied based on the number and length of power outages.

A new primary (3 phase) electrical cable was buried from Mammoth Hot Springs area to Tower-Roosevelt area in 1987 (Northwestern Energy). The electricity is transformed down to single phase 400 watt/240v-120v service for the entire Tower-Roosevelt area. A backup generator at the Tower Administrative location provides electricity for the Tower-Roosevelt and Mammoth Hot Springs areas during power outages.

NPS Employee Housing: NPS employee housing consists of seven housing units and four trailers in the Tower Administrative location. A four-plex was built in 1998, but housing remains inadequate, according to the 2005 Housing Management Plan and district staff based park staff housing needs and the conditions of existing housing especially the trailers. Several NPS employees live in 40-year-old trailers that can only be used for seasonal employees. The trailers have leaking roofs and rodent infestations. Further, the trailers detract from the historic character of the Tower Ranger Station and Roosevelt Lodge Historic Districts. The 2005 YNP Housing Management Plan for Tower-Roosevelt area showed a deficit of 3 year-round quarters and 9 seasonal quarters.

Emergency Services: Law enforcement rangers are responsible for visitor and resource protection, emergency service, and structural fire response. These functions are provided from the Tower Ranger Station and Tower Administrative locations. Additional duties from these locations include responding to wildlife traffic jams, issuing fishing and backcountry permits, and providing information out of the Tower backcountry office. The 1992 Draft EA Employee Housing and Community Plan for Tower recommended additional space for emergency services vehicles since some of the emergency vehicles at the Tower Administration location are stored outdoors, year round.

Concession Operations

Xanterra Parks and Resorts, Delaware North Park Services, and Yellowstone Park Service Stations are the three park concessioners currently providing visitor services and operating facilities in the Tower-Roosevelt area.

Xanterra Parks and Resorts: At the Roosevelt Lodge location, Xanterra Parks and Resorts operates full-service facilities with cabins, dining room, corral operation, and retail sales, which are open from early June to early September. The lodge contains a lobby and dining room with seating for 82 people. There are 80 guest cabins (with and without bath), with a pillow count of 264. Electric heat is in 14 cabins and wood-burning stoves are in 66 cabins. Two cabins are accessible for persons with disabilities. The occupancy rate for Roosevelt cabins is 99 percent. The lodge also has an employee dining room with seating for 46. Fifty-five employee cabins house 132 employees. Support structures include three guest

shower facilities, one employee shower facilities, a maintenance building, and a linen building. Facilities are closed during the winter.

Roosevelt Lodge and cabins have traditionally been summer facilities; however in the past few years both the lodge and the cabins have been used in September by the Yellowstone Association for an interpretive program called “Roosevelt Rendezvous” that is a four-day adult education session.

The Roosevelt Corrals location includes a hay barn, saddling barn, two harness sheds, tack shed, wrangler office, employee and guest restrooms, and a ticket sales building. Horseback riding (six rides per day), stagecoach rides (five or six per day), and a nightly western cookout are popular activities. The Roosevelt corral operation has stagecoaches, wagons, and horses. The concessioner provides one-hour stagecoach rides using two coaches modeled after the Tally-Ho coaches in the park’s museum collection. The corrals also provide one and two-hour trail rides several times in the morning and afternoon.

Xanterra provides an evening cookout at the Yancey’s Hole location for approximately 200 guests. Visitors travel to the cookout on horseback or in wagons. The cookout occurs rain or shine, and sells out nearly every night. The Yancey’s Hole location includes six buildings and hitching rails for wagon teams and saddle horses. The dining shelter and serving shelter are open log frame structures with canvas tops and without walls. Two small log buildings are used for storage. There are two small, log-sided vault toilets on the site.

Delaware North: Delaware North Park Services operates a general store at the Tower Fall Trailhead location and a small store adjacent to Roosevelt Lodge. The Tower Fall store operates from mid-May to mid-September. The store sells retail items, camping supplies, and ice cream. It also has a small food service with an outside seating area. The existing building size is approximately 8,250 square feet.

The Roosevelt store is approximately 1,100 square feet. It is primarily used by guests staying at Roosevelt Lodge, and has the same operating season as the Roosevelt Lodge (early June to early September). The store offers limited retail items for visitors staying in the Roosevelt cabins.

Yellowstone Park Service Stations: The Tower Junction service station is open from early June until early September, matching the Roosevelt Lodge season. The station is directly adjacent to the Grand Loop Road in the Tower Junction location. It has four self-serve 24- hour credit card gas pumps.

Concession Employee Housing: During the peak season, approximately 138 Xanterra employees work in the Roosevelt Lodge location, 110 at the Roosevelt Lodge, cabins and dining room, and 28 wranglers with the corral operation. Most of these employees live in cabins at Roosevelt, but a few commute from Gardiner, Montana. YPSS has four employees working at the Tower Junction service station and are housed in Roosevelt Lodge employee cabins. Four-plex cabins for concessions staff were moved into the Roosevelt Lodge location in lieu of constructing new dormitories. However, 45 of the 56 cabins used for concession employee housing do not have running water or bathrooms, so common restrooms and a shower facility are used. There are typically 45 employees working at the Tower Fall general store and six employees working at the Roosevelt general store. Delaware North houses approximately 40 employees in a 19-room dormitory at the Tower Fall Administrative location. Six RV sites adjacent to the dormitory provide accommodation for an additional 12 employees, and there is an RV site next to the Tower Fall store. The dormitory includes an employee dining room that seats 40.

Chapter 4: ENVIRONMENTAL CONSEQUENCES

IMPAIRMENT

NPS Management Policies 2006 require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the NPS Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS Management Policies 2006 states: “NPS managers must seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, laws do give the NPS management the discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.”

Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values. An impact to a park resource or value may constitute impairment to the extent that it has a major adverse effect upon a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park’s general management plan or other relevant NPS planning documents.

An impact that may, but would not necessarily, lead to impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. A determination on impairment is made in the Conclusion section for each of the resource topics in Chapter 4, Environmental Consequences. No impairment of resources would occur under any of the alternatives in this plan.

UNACCEPTABLE IMPACTS

According to NPS Management Policies 2006, “The impact threshold at which impairment occurs is not always readily apparent. Therefore, the Service will apply a standard that offers greater assurance that impairment will not occur. The Service will do this by avoiding impacts that it determines to be unacceptable. These are impacts that fall short of impairment, but are still unacceptable within the park’s environment. Park managers must not allow uses that would cause unacceptable impacts; they must evaluate existing or proposed uses and determine whether the associated impacts on park resource and values are acceptable.”

Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be

disallowed. Therefore, for purposes of these policies, unacceptable impacts are impacts that, individually or cumulatively, would meet the following criteria:

- inconsistent with a park's purposes or values,
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the parks planning process,
- create an unsafe or unhealthful environment for visitors or employees,
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values,
- unreasonably interfere with
 - park programs or activities;
 - an appropriate use;
 - the atmosphere of peace and tranquility or the natural soundscape maintained in wilderness and in natural, historic, or commemorative locations within the park;
 - NPS concessioner or contractor operations or services.

In accordance with NPS Management Policies 2006, park managers must not allow uses that would cause unacceptable impacts to park resources. To determine if unacceptable impacts could occur to the resources and values of Yellowstone National Park, the impacts of proposed actions in this Environmental Assessment were evaluated based on the above criteria. A determination on unacceptable impacts is made in the Conclusion section for each of the resource topics in Chapter 4, Environmental Consequences. No unacceptable impacts would occur under any of the alternatives in this plan.

NATURAL RESOURCES

All natural resource survey maps are referenced in Appendix B.

Geologic, Paleontological and Soils Resources

Guiding Regulations and Policies

The geologic setting is the fundamental underlying factor for the behavior and characteristics of a landscape. NPS geologic resources are important for their role in the ecosystem, their scenic grandeur, and their contribution to visitor enjoyment. Yellowstone National Park was established specifically to protect geologic resources. The park contains geologic resources of international renown, including both geologic features and processes. For the purpose of this discussion, this topic includes topography, fluvial features, geothermal resources, and glacial features, volcanoes, arid land features, geologic hazards, other unique geologic resources, soils and the processes which support these resources. NPS has developed policies and guidance on geologic resource management. Section 4.8 of 2006 Management Policies addresses geologic resource management including geologic features and processes. This policy states that NPS will maintain, preserve and protect geologic resources as integral components of park natural systems.

Paleontological resources (fossils and their associated data) are evidence of past life. They are the basis for our understanding of the history of life on Earth, and are an integral part of our planet's biodiversity. NPS regulations at 36 CFR §2 prohibit possessing, destroying, injuring, defacing, removing, digging, or disturbing paleontological resources from their natural state on federally-owned NPS lands.

Methodology and Intensity Thresholds

Analyses of the potential impacts on geologic, paleontological and soils resources were derived from available information of the impacts from both visitor use and possible projects activities.

The thresholds for the intensity of impact to geologic, paleontological and soils resources are defined as follows:

Negligible: An action that could result in a change to a natural physical resource, but the change would be so small that it would not be of any measurable or perceptible consequence. Soils would not be affected or the effects on soils would not be detectable.

Minor: An action that could result in a change to a natural physical resource, but the change would be small and localized and of little consequence. Mitigation measures proposed to offset adverse effects would include measures to reduce the appearance of the physical disturbance, to reshape landscape contours, and to minimize the effects to physical properties (e.g., permeability, porosity, thermal conductivity).

Effects on soils would be detectable, although these effects would be localized and short-term. There could be some slight physical disturbance, some removal of soil material, and/or some compaction. Mitigation measures proposed to offset adverse effects would include ensuring that topsoil is preserved, ground is reshaped into the natural contours, the ground is de-compacted, and that there is no unnatural erosion of soils.

Moderate: An action that would result in a change to a natural physical resource; the change would be measurable and of consequence. Effects on geologic resources would be readily apparent and measurable. The appearance of a geologic resource would be modified or its physical properties (e.g., permeability, porosity, thermal conductivity) compromised. Mitigation measures proposed to offset adverse effects would be extensive and would include measures to reduce the appearance of the physical disturbance, to reshape landscape contours, and to minimize the effects to physical properties.

Effects on soils would be readily detectable, localized, and possibly long-term. Measurable effects could include physical disturbance, removal of large amounts of soil, compaction, and/or unnatural erosion of soils. Mitigation measures proposed to offset adverse effects would be extensive and would include measures to ensure that topsoil is preserved, ground is reshaped into the natural contours, ground is de-compacted, and that there is no unnatural erosion of soils.

Major: An action that would result in a noticeable change to a natural physical resource; the change would be measurable and result in a severely adverse or major beneficial impact. Effects on geologic resources would be readily apparent, measurable, severe, and long-term. Entire features could be removed or the physical properties significantly altered. Mitigation measures proposed to offset adverse effects would be extensive, but the effect would remain.

Effects on soils would be widespread, readily detectable, and long-term. Significant measurable effects would include the physical disturbance and removal of large amounts of soil, severe compaction, and the unnatural erosion of soils. Mitigation measures proposed to offset adverse effects would be extensive.

Duration: Short-term effects would last only during the implementation of the project including its mitigation and monitoring measures. Long-term effects would typically constitute a permanent impact.

Impacts of Alternative A to Geologic, Paleontological, and Soils Resources Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are no guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones which use resource surveys and then locate proposed projects in areas that avoid or mitigate impacts. Without a comprehensive plan, impacts to geologic, paleontological and soil resources such as excavation or construction disturbances could occur and could be more than if a comprehensive plan is not adopted.

Impacts to geologic resources could occur without a planning boundary that limits where development can occur within the comprehensive plan. Important geologic resources such as the Tower Fall and the Yellowstone River Canyon occur outside the planning boundary in the Tower/Roosevelt area and thus, could be impacted.

Impacts to paleontological resources (fossil wood, trees, and leaves) are a concern. Presently, visitors at the Yancey's Hole location find and illegally collect paleontological resources from the 50 million year old Absaroka volcanic rocks. Paleontological resources at the Yancey's Hole location could be affected if facilities are constructed without mitigation measures found in the comprehensive plan's design standards.

Impacts to soils from future construction projects, including updates to utility systems would require reclamation and site restoration and would be guided by successful topsoil conservation and natural site contouring following policy in "Vegetation Management for Construction Disturbance in Yellowstone National Park" (1995). These impacts would not necessarily be minimized. All laws and policies would be followed for construction projects, including the use of standard approved erosion control and topsoil salvaging techniques.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for moderate adverse impacts from projects are likely due to the lack of a comprehensive set of guidelines or mitigation measures. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

In Alternative A, the combined impacts to geologic, paleontological, and soils resources are expected to long term moderate and adverse.

Cumulative Impacts

The past reconstruction of the Canyon to Tower (phase 1), Northeast Entrance and Beartooth Roads affected sensitive geologic and soils resources. Future reconstruction of the Grand Loop, Northeast

Entrance and Beartooth roads around the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on geologic and soil resources due to the amount of excavation required and where the construction will occur. Geologic impacts could occur at Overhanging Cliff for phase two of Canyon Junction to Tower Junction Road Improvement Project (EA, 2001). Soil impacts and hillside instability could occur at Tower Fall Trailhead parking, which could require fill material. Ongoing visitation in the Yancey's Hole location could affect important paleontological resources such as fossils and petrified trees through surface disturbance and vandalism. Erosion, compaction, fire suppression, maintenance, and rehabilitation of trails are likely activities that have and could affect soils. Because of these impacts, the above projects would be expected to have long-term, moderate impacts adverse to geologic, paleontological and soil resources. There are no other known construction projects planned in the northeast area of the park that would affect geologic, paleontological and soil resources. Cumulative impacts from these past, present, and future actions would have long-term moderate adverse impacts to geologic, paleontological and soils resources.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. There would be no restrictions or limitations on the characteristics of the development, its placement or quantity. Future projects would go through separate environmental analysis process. The impacts to geologic, paleontological and soils from these projects and utilities associated with these projects are expected to be long-term, moderate, and adverse due to the lack of a comprehensive set of guidelines or mitigation measures. When combined with past, present, and foreseeable future actions, Alternative A could have long-term, moderate adverse impacts to geological, paleontological, and soils resources.

Because there would be no major adverse impacts to geologic, paleontological, and soils resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Yellowstone National Park; (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of the park's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Geologic, Paleontological, and Soils Resources Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. With the adoption of buildable planning zones, development in the Tower-Roosevelt area mostly avoids geologic resources. By using resource surveys, these zones limit the location of development, thereby avoiding geologic, paleontological and soils resources. The development footprint accommodates a net gain of up to 21,225 square feet for buildings, 41,250 square feet for paved parking and no net gain for unpaved parking further restricting the size of development and thus, impacts associated with expanded disturbances. This compares with the existing development footprint of 115,005 square feet for buildings or 19 % net gain, and 142,322 square feet for paved parking or 29% net gain. Tower Fall general store, restrooms and parking area are developed on top of unstable and low permeability lake sediments which could be a limiting factor to future development in this location. Important geologic resources such as the Tower Fall, the Yellowstone River Canyon, standing petrified trees, and Overhanging Cliffs are considered to be outside the planning boundary and not part of future development identified in the comprehensive plan. Impacts to paleontological resources (fossil wood, trees, and leaves) are a geologic concern. Presently, visitors at the Yancey's Hole location find and illegally collect paleontological resources from the 50

million year old Absaroka volcanic rocks. Paleontological resources at the Yancey's Hole location would be protected or mitigated due to limits of construction and excavation of facilities and mitigation measures for buried resources stated in Chapter 2.

In Alternative B, a potential increase in development of facilities with underground utilities at the Tower Junction, Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, and Tower Administrative locations and a potential decrease in development at the Tower Fall trailhead location could have moderate adverse impacts to soils and hillside instability. New facilities may occur at the Tower Junction location to accommodate visitor services and parking. This construction at the Tower Junction location has the greatest potential for soil disturbance, including excavation for up to 9,000 square feet additional building foundations and up to 35,400 square feet for additional parking. This development could require substantial excavation for cut slopes, and trenching for new utilities. The impacts are potential increased erosion, soil instability and surface runoff. Construction staging would occur within the existing disturbance, mitigating this impact. Reclamation and site restoration would implement topsoil conservation and natural site contouring following the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). All laws and policies would be followed for construction projects, including the use of standard approved erosion control techniques.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Planning Zone*, impacts to geologic, paleontological, and soils would need to be less than impacts described in this EA for this alternative as long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

The past reconstruction of the Canyon to Tower, Northeast Entrance and Beartooth Roads affected sensitive geologic and soils resources. Future reconstruction of the Grand Loop, Northeast Entrance and Beartooth roads around the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on geologic and soil resources. Geologic impacts could occur at Overhanging Cliff for phase two of Canyon Junction to Tower Junction Road Improvement Project (EA, 2001). Soil impacts and hillside instability could occur at Tower Fall Trailhead parking, which could require fill material. Ongoing visitation in the area could affect important paleontological resources such as fossils and petrified trees through surface disturbance and vandalism. Erosion and compaction could result from activities such as fire suppression, maintenance, and rehabilitation of trails that have and could affect soils. The design standards in the comprehensive plan provide for the use of fire resistant materials including roofing materials which may reduce the fire hazards in the area and therefore, reduce the potential impacts to soils from fire suppression. Consolidation of development which is a design standard, will reduce surface runoff by reducing the amount of paved surface. Utilizing native vegetation and specialized techniques to minimize disturbance to topsoil in disturbed areas is another design standard which will reduce the amount of soil erosion because the vegetation will quickly stabilize the area reducing erosion. Because of these impacts, the above projects would be expected to have long-term, moderate impacts adverse to geologic, paleontological and soil resources. There are no other known construction projects planned in the northeast area of the park that would affect geologic, paleontological and soil resources. Cumulative impacts from these past, present, and future actions would have long-term moderate adverse impacts to geologic, paleontological and soils resources.

Conclusion

In Alternative B, future projects would proceed with the guidance of a comprehensive plan and would avoid or mitigate impacts to geologic, paleontological and soil resources. The impacts to geologic, paleontological and soils from these projects and utilities associated with these projects are expected to be long-term, moderate, and adverse. Possible projects at the Tower Junction and Tower Fall Trailhead locations are most likely to generate impacts to geologic, paleontological and soils resources through excavation for foundations, removal of structures, construction staging within the sites and excavation for utilities associated with expansion in these locations. Because of design standards within the plan that utilize fire resistant materials which avoid soil erosion due to fire suppression activities; excavation restrictions which lessen the potential impact to paleontological resources due to soil disturbance; development footprint restrictions which lessen the amount of cut to slope reducing the amount of slope instability and erosion, these impacts are minimized. Alternative B does allow more excavation to soils at Yancey's Hole by allowing replacement with minor expansion in this area as compared to Alternative C which does not allow for expansion. Buried resources could be impacted by soil disturbing activities. The design standards mitigate this by limiting the excavation to areas which are less sensitive reducing the possibility of disturbance. Topsoil conservation techniques and native revegetation less the impacts of exotic infestations and erosion as revegetation stabilizes disturbed areas. Because the locations where these impacts occur avoid resources, the amount of expansion is limited and the character of the impacts is guided through the comprehensive plan, impacts to these resources are lessened. When combined with past, present, and foreseeable future actions, Alternative B could have long-term, moderate adverse impacts to geologic, paleontological and soils resources.

Because there would be no major adverse impacts to geologic, paleontological, and soils resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Yellowstone National Park; (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of the park's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Geologic, Paleontological, and Soils Resources

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. With the adoption of buildable, development in the Tower-Roosevelt area mostly avoids geologic, paleontological and soils resources. The development footprint accommodates a net gain of up to 8,050 square feet for buildings, 31,000 square feet for paved parking and no net gain for unpaved parking. This compares with the existing development footprint of 115,005 square feet for buildings or 7% net gain and 142,322 square feet for paved parking for a net gain of 22%. The net gain in Alternative is less than the net gain identified in Alternative B. Tower Fall general store, restrooms and parking lot are developed on unstable and low permeability lake sediments which could be a limiting factor to future development in this location. Important geologic resources such as the Tower Fall, the Yellowstone River Canyon, standing petrified trees, and Overhanging Cliffs are all considered to be outside the planning boundary; future development would not be identified in this plan. Impacts to paleontological resources (fossil wood, trees, and leaves) are a geologic concern. Presently, visitors at the Yancey's Hole location find and illegally collect paleontological resources from the 50 million year old Absaroka volcanic rocks. Paleontological resources at the Yancey's Hole location would be protected or mitigated due to impacts of the construction of facilities and excavation using the mitigation measures found in Chapter 2 and in the design standards for this location. Development footprint is limited in this location further reducing the potential impacts.

In Alternative C, new facilities may occur at the Tower Junction location to accommodate visitor services and parking. A potential increase in development with underground utilities at the Tower Junction, Roosevelt Lodge, Tower Ranger Station, and Tower Administrative and a potential decrease in development at the Tower Fall trailhead locations could have minor adverse impacts to soils and hillside instability. Future construction at the Tower Junction location has the greatest potential for soil disturbance, including excavation for building foundations and parking areas, excavation for up to 2,000 square feet additional building foundations and up to 15,000 square feet for additional parking, excavation for cut slopes, and trenching for new utilities. Erosion and compaction could result from activities such as fire suppression, maintenance, and rehabilitation of trails that have and could affect soils. The design standards in the comprehensive plan provide for the use of fire resistant materials including roofing materials which may reduce the fire hazards in the area and therefore, reduce the potential impacts to soils from fire suppression. Consolidation of development which is a design standard, will reduce surface runoff by reducing the amount of paved surface. Utilizing native vegetation and specialized techniques to minimize disturbance to topsoil in disturbed areas is another design standard which will reduce the amount of soil erosion because the vegetation will quickly stabilize the area reducing erosion. Reclamation and site restoration would implement topsoil conservation and encourage native revegetation following the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). This would minimize the impacts to exotic infestation in soils in this alternative. All laws and policies would be followed for construction projects, including the use of standard approved erosion control techniques.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Planning Zone*, impacts to geologic, paleontological, and soils would need to be less than or equal to the impacts described in this EA for this alternative as long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

The past reconstruction of the Canyon to Tower, Northeast Entrance and Beartooth Roads affected sensitive geologic and soils resources. Future Reconstruction of the Grand Loop, Northeast Entrance and Beartooth roads around the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on geologic and soil resources due to erosion and slope instability. Geologic impacts could occur at Overhanging Cliff for phase two of Canyon Junction to Tower Junction Road Improvement Project (EA, 2001). Soil impacts and hillside instability could occur at Tower Fall Trailhead parking, which could require fill material. Ongoing visitation in the area could affect important paleontological resources such as fossils and petrified trees through surface disturbance and vandalism. Erosion, compaction, fire suppression, maintenance, and rehabilitation of trails are the most likely activities that have and could affect soils. The application of design standards that include revegetation with native materials minimizes impacts in these locations because exotic infestation and soil erosion would be minimized. Because of these impacts, the above projects would be expected to have long-term, minor impacts adverse to geologic, paleontological and soil resources. There are no other known construction projects planned in the northeast area of the park that would affect geologic, paleontological and soil resources. Cumulative impacts from these past, present, and future actions would have long-term minor adverse impacts to geologic, paleontological and soils resources.

Conclusion

In Alternative C, future projects would proceed with the guidance of a comprehensive plan. The impacts to geologic, paleontological and soils from these projects and utilities associated with these projects are

expected to be long-term, minor, and adverse. Buildable planning zones locate development where resources are less impacted, development footprint limits the amount of impact and design standards restores native vegetation and natural contours to areas where geologic, paleontological and soils resources are affected. Possible projects in the Tower Junction location have a smaller development footprint in Alternative C than in Alternative B, so impacts would be reduced to geologic, paleontological and soils resources such as excavation for foundations or utilities. Since the development footprint is smaller in these locations, and in the Roosevelt Corral location, less impact would occur to soil movement or removal. Only a minor amount of development footprint is allowed for the Roosevelt Lodge location (650 square feet for buildings) so the impacts to soils would be minimal. The paved parking could be reconfigured in this location, impacts would be mitigated according to Chapter 2 and to the design standards in this location. Because of the implementation of design standards that support reduced impacts due to consolidated development which reduces surface runoff; the use of fire resistant materials which reduces the potential impacts to soils from fire suppression activities and the use of techniques which manage topsoil disturbance and restore native vegetation reducing erosion and exotic infestations, overall impacts are minimized. Cuts and fills are less in Alternative C at the Tower Junction location because the plan calls for a reduced development footprint, reducing the potential for slope instability and erosion. Alternative C allows replacement in kind using no additional excavation at the Yancey's Hole location which lessens the potential for paleontological disturbances due to excavation of materials below the surface. This impact is reduced by both the development footprint and the design standards in the plan compared to Alternative B which allows for some additional excavation in this location. When combined with past, present, and foreseeable future actions, Alternative C could have long-term, minor adverse impacts to geologic, paleontological and soils resources.

Because there would be no major adverse impacts to geologic, paleontological, and soils resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Yellowstone National Park; (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of the park's resources or values. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Floodplains, Wetlands and Other Waters of the U.S.

Guiding Regulations and Policies

NPS Management Policies (2006) Section 9.1.1.5 Siting Facilities to Avoid Natural Hazards states "The Service will strive to site facilities where they will not be damaged or destroyed by natural physical processes. Natural hazard areas include...floodplains, flash-flood zones....park development that is damaged or destroyed by a hazardous or catastrophic natural event will be thoroughly evaluated for relocation or replacement by new construction at a different location...that is believed to be free from natural hazards."

Director's Order #77-2 (Floodplain Protection) and the accompanying Procedural Manual #77-2: Floodplain Management establish NPS procedures for implementing floodplain protection and management actions in units of the National Park System as required by Executive Order 22988, "Floodplain Management." If a proposed action is found to be in an applicable regulatory floodplain and locating the action to a non-floodplain site is considered not to be a viable alternative, then flood conditions and associated hazards must be quantified as a basis for management decision making and a formal Statement of Findings (SOF) must be prepared and be made available for public review. The SOF

must describe the rationale for selection of a floodplain site, disclose the amount of risk associated with the chosen site, and explain flood mitigation plans.

Executive Order 11990 – Protection of Wetlands (42 Fed. Reg. 26961) directs the NPS: 1) to provide leadership and to take actions to minimize the destruction, loss, or degradation of wetlands 2) to preserve and enhance the natural and beneficial values of wetlands; and 3) to avoid direct or indirect support of new construction in wetlands unless there are no practicable alternatives to such construction and the proposed action includes all practicable measures to minimize harm to wetlands.

Director's Order #77-1 and Director's Order #77-1: WETLAND PROTECTION and the accompanying Procedural Manual #77-1: Wetland Protection (Reissued February 2008) These documents establish NPS policies, requirements, and standards for implementing Executive Order (E.O.) 11990: "Protection of Wetlands" (421 Fed Reg.26961). Included in Director's Order #77-1 is adoption of a "no net loss of wetlands" goal, which was first proclaimed in 1989 by President George Bush and has been sustained by subsequent Administrations.

Section 404 of the Clean Water Act: Under Section 404 of the Clean Water Act: The U.S. Army Corps of Engineers issues permits for activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. Regulated activities range from depositing fill for building pads or roads to discharges associated with mechanized landclearing. The NPS #77 -1 procedural manual for wetland protection explains the relationship between Section 404 and the requirements of D.O. #77-1:

"Although portions of the Corps of Engineers 404 permit procedures (33 CFR 320-330) are similar to some of the requirements found in D.O. #77-1 and these implementing procedures, there are significant differences in scope that warrant a separate NPS wetland protection process. First, the 404 permit program regulates only the discharge of dredged or fill material, while Executive Order 11990 covers a much broader range of actions that can have adverse impacts on wetlands, including ground water withdrawals, water diversions, nutrient enrichment, and other examples listed in Section 4.1.2 of these procedures. Second, the wetland definition used for the 404 permit program (33 CFR 328.3) is narrower than the Cowardin et al. (1979) wetland definition used for NPS compliance with E.O. 11990 (see Section 4.1.1 of these procedures). Therefore, a broader range of aquatic habitat types fall under these procedures than under the wetland procedures of the 404 permit program. Third, the Corps of Engineers has "general permit" provisions that allow many projects affecting wetlands to proceed with minimal review.

All NPS actions with the potential to have adverse impacts on wetlands (as defined in Section 4.1.1) and must comply with D.O. #77-1 and these procedures, and those actions that involve placing dredged or fill material in wetlands or other "waters of the U.S." (as defined in 33 CFR 320-330) must comply with Section 404 of the Clean Water Act as well. In cases where both NPS and Corps of Engineers procedures apply, it is important to avoid duplication of effort by coordinating with the appropriate Corps of Engineers office early in the process of developing alternatives to assure that they are workable under both these procedures and Section 404 regulations. Also, if wetland compensation is necessary (Section 5.2.3 of these procedures), every effort should be made to assure that the same wetland restoration proposal meets the compensation requirements of both processes (NPS #77-1 2008).

Methodology and Intensity Thresholds

The methodology used for assessing impacts to floodplains, wetlands and other waters of the U.S. are based upon the results of the 2006 floodplain analysis and the 2005 wetland survey for the Tower Junction developed area in comparison to the planning components for buildable planning zones, planning prescriptions and design guidelines.

The thresholds of change for the intensity of impacts to floodplains, wetlands and other waters of the U.S. are defined as follows:

Negligible: Impacts would occur outside the regulatory floodplain, or there would be no measureable or perceptible effect on floodplain functions or values and no measurable or perceptible risk to facilities or visitors. No measureable or detectable effect on the timing or intensity of stream flow would occur. No measureable or perceptible changes in wetland or other waters of the U.S. size, integrity, or continuity would occur.

Minor: Actions within the regulatory floodplain would potentially interfere with floodplain functions/values or facility/visitor risks in a limited way or in a localized area. The impact would be measureable or perceptible, but slight. A small change in size, integrity, or continuity could occur due to short-term indirect effects such as construction-related runoff. An action would have measureable effects on the timing or intensity of flows. The overall viability of the wetland or other water of the U.S. would not be affected.

Moderate: Actions within the regulatory floodplain would interfere with floodplain function/values or facility/visitor risks in a substantial way or in a large area. Action would clearly have detectable effects on the timing of intensity of flows and potentially would affect organism or natural ecological processes. The impact would be sufficient to cause a measureable change in the size, integrity, or continuity of the wetland or would result in a small, but permanent loss or gain in wetland acreage.

Major: Actions within the regulatory floodplain would permanently and significant alter floodplain functions/values or facility/visitor risks. An action would have substantial effects on the timing or intensity of flows and potentially would affect organisms or natural processes. The action would result in a measurable change in size, integrity, and continuity (all three) or a permanent loss of large wetland areas. The impact would be substantial and highly noticeable.

Duration: Short-term effects would last only during the implementation of the project including its mitigation and monitoring measures. Long-term effects would typically constitute a permanent impact.

Impacts of Alternative A to Floodplains, Wetlands and other Waters of the U.S.

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without restrictions of buildable planning zones which use floodplain, wetland and other waters of the U.S. surveys and then avoid or mitigate these resources.

Without a comprehensive plan, impacts to floodplain, wetland and other waters of the U.S. could occur and could be more than if a comprehensive plan is not adopted because the comprehensive plan contains mitigation measures, design standards which guide the character of the development (such as consolidating creek crossing for utilities) and limitations on the development footprint (how much development can occur).

Surveys of floodplains, wetlands and other waters of the U.S. resources have been recently done within the planning boundary of the Tower-Roosevelt area and then mapped, therefore resource information would be readily available to guide environmental compliance analyses for future project proposals; potentially resulting in an improvement in efficiency and effectiveness of separate compliance actions. The cumulative impacts of the compliance would be uncertain. Surveys of floodplains, wetlands and other waters of the U.S. outside the planning boundary would be done on a case-by-case basis and efforts to avoid or minimize impacts to floodplains, wetlands and other waters of the U.S. would occur on a case by case basis. Future development may impact identified floodplains, wetlands and other waters of the U.S. within the planning boundary and unidentified floodplains, wetlands and other waters of the U.S. outside the planning boundary.

Guests at the Yancey's Hole location would continue to cross the creek to be served dinner. Horse crossings of Lost Creek and Yancey's Creek would continue. Impacts to floodplains, wetlands and other waters of the U.S. from crossing the creek would continue to be minor and long term. Utility crossings could occur wherever feasible without consolidation. Increased development along the entrance route to the Tower Administrative location which parallels the creek could encroach on wetland areas; impacts would be addressed in separate compliance actions. Impacts to wetlands in the Tower Fall Campground location would be managed on a case by case basis without direction for future change. The combined impacts to floodplains, wetlands and other waters of the U.S. under the no action alternative are expected to be short and long-term minor and adverse.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor impacts from projects are likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

In Alternative A, the combined impacts to floodplains, wetlands and other waters of the U.S. resources are expected to long term minor and adverse.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impacts to floodplains, wetlands and other waters of the U.S. resources. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long term, minor impacts to floodplains, wetlands and other waters of the U.S. resources. Possible prolonged drought could have impacts on stream flow, wetlands, and riparian zones and could lead to a decrease in ground and surface water and associated flora and fauna. Additional potable water sources may be needed if water levels in the existing spring continue to drop. Because of these impacts, the above projects would be expected to have minor and adverse impacts to floodplains, wetlands and other waters of the U.S. resources. There are no other known construction projects planned in the northeast area of the park that would affect floodplains, wetlands and other waters of the U.S. resources. Cumulative impacts resulting from these past, present, and future actions would have minor impacts to floodplains, wetlands and other waters of the U.S. resources.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis. The impacts to floodplains, wetlands and other waters of the U.S. from these projects and utilities associated with these projects are expected to be long-term, minor, and adverse. Due to development and utility expansion that is not constrained and

mitigated by the comprehensive plan, impacts would be evaluated on a case by case basis. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term, minor adverse impacts to floodplains, wetlands and other waters of the U.S. resources.

Because there would be no major adverse impacts to floodplains, wetlands and other waters of the U.S. whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Floodplains, Wetlands and other Waters of the U.S.

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. With the adoption of buildable planning zones, development that could impact floodplains, wetlands and other waters of the U.S. are mostly avoided in the Tower-Roosevelt area but minor impacts could occur from increased development in the Tower Administration and Tower Ranger Station locations due to an expanded parking lot and utility crossings in Lost Creek. By using resource surveys, these zones limit the location of development by avoiding these resources. Design standards provide for consolidation of both parking areas and of utility crossings so that impacts are minimized. Development footprint is limited by the planning prescriptions in the comprehensive plan which also limits impacts.

In the buildable planning zones other than the *Natural Buildable Zone*, there would not be any impacts to floodplains, wetlands and other waters of the U.S., other than short-term disturbance from the maintenance or construction of utility systems in stream crossings. All disturbances would be permitted and mitigated according to existing regulations and policy. New utility systems would follow existing corridors when crossing Lost Creek and would avoid floodplains, wetlands and other waters of the U.S. when possible. Natural channel morphology, river and stream flow, deposition, erosion, and flood patterns would be maintained. There would be no long-term disturbance within the 100 year floodplain, which is entirely within the active Lost Creek channel.

A small wetland to the south of the Tower Ranger Station location could be disturbed in order to accommodate parking for an improved visitor contact station. Impacts on this wetland could result in minor effects and would be permitted and mitigated according to regulation and policy.

Guests at the Yancey's Hole location would continue to cross the creek to be served dinner. Horse crossings of Lost Creek and Yancey's Creek would continue. Impacts to floodplains and wetlands from crossing the creek would continue to be minor.

For implementation of possible projects in the TRCP buildable planning, especially utilities in the *Natural Buildable Zone*, impacts to floodplains, wetlands and other waters of the U.S. would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impacts to floodplains, wetlands and other waters of

the U.S. resources. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long term, minor impacts to floodplains, wetlands and other waters of the U.S. resources. Possible prolonged drought could have impacts on stream flow, wetlands, and riparian zones and could lead to a decrease in ground and surface water and associated flora and fauna. Additional potable water sources may be needed if water levels in the existing spring continue to drop. Because of these impacts, the above projects would be expected to have minor, localized impacts on floodplains, wetlands and other waters of the U.S. resources. There are no other known construction projects planned in the northeast area of the park that would affect floodplains, wetlands and other waters of the U.S. resources. Cumulative impacts resulting from these past, present, and future actions would have long-term minor impacts to floodplains, wetlands and other waters of the U.S. resources.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to floodplains, wetlands and other waters of the U.S. from these projects and utilities associated with these projects are expected to be short and long-term, minor, and adverse. Restrictions on the location, amount and character of development in Alternative B reduces the possible impacts because there is less development and mitigation is provided. Utility corridors are consolidated and minimized through the plan; development is located where impacts can be mitigated. Future change is guided by the plan so that development is sited where impacts are less. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse impacts to floodplains, wetlands and other waters of the U.S. resources.

Because there would be no major adverse impacts to floodplains, wetlands and other waters of the U.S. resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Floodplains Wetlands and other Waters of the U.S.

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. With the adoption of buildable planning zones, development that could impact floodplains, wetlands and other waters of the U.S. are mostly avoided in the Tower-Roosevelt area. By using resource surveys, these zones limit the location of development by avoiding these resources.

In the buildable planning zones other than the *Natural Buildable Zone*, there would not be any impacts to floodplains, wetlands and other waters of the U.S., other than short-term disturbance from the maintenance or construction of utility systems in stream crossings. All disturbances would be permitted and mitigated according to existing regulations and policy. New utility systems would follow existing corridors when crossing Lost Creek and would avoid floodplains, wetlands and other waters of the U.S. when possible. Natural channel morphology, river and stream flow, deposition, erosion, and flood patterns would be maintained. There would be no long-term disturbance within the 100 year floodplain, which is entirely within the active Lost Creek channel.

Guests at the Yancey's Hole location would continue to cross the creek to be served dinner. Horse crossings of Lost Creek and Yancey's Creek would continue. Impacts to floodplains and wetlands from

crossing the creek would continue to be minor. Utility corridors would be consolidated and minimized so that disturbance is minimized. Siting of development would avoid resource impacts by locating buildings where revegetation can occur.

For implementation of possible projects in the TRCP buildable planning, especially utilities in the *Natural Buildable Zones*, impacts to floodplains, wetlands and other waters of the U.S. would need to be less than or equal to impacts described in this EA for this alternative as short and long term negligible to minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impacts to floodplains, wetlands and other waters of the U.S. resources. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long term, minor impacts to floodplains, wetlands and other waters of the U.S. resources. Possible prolonged drought could have impacts on stream flow, wetlands, and riparian zones and could lead to a decrease in ground and surface water and associated flora and fauna. Additional potable water sources may be needed if water levels in the existing spring continue to drop. Because of these impacts, the above projects would be expected to have minor, localized impacts on floodplains, wetlands and other waters of the U.S. resources. There are no other known construction projects planned in the northeast area of the park that would affect floodplains, wetlands and other waters of the U.S. resources. Cumulative impacts resulting from these past, present, and future actions would have long-term minor impacts to floodplains, wetlands and other waters of the U.S. resources.

Conclusion

In Alternative C future projects would proceed with the guidance of the comprehensive plan. Alternative C has less allowable development footprint than Alternative B and therefore, less impacts to resources. Utility corridors would be consolidated and minimized so that impacts would be reduced. Mitigation measures described in Chapter 2 would be applied such as revegetation with native materials. The impacts to floodplains, wetlands and other waters of the U.S. from these projects and utilities associated with these projects are expected to be short and long-term, negligible to minor, and adverse. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, minor adverse impacts to floodplains, wetlands and other waters of the U.S. resources.

Because there would be no major adverse impacts to floodplains and wetlands whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Vegetation and Rare Plants

Guiding Regulations and Policies

Section 4.4 of the NPS Management Policies (2006) addresses biological resource management including general vegetation management. This policy states that the NPS will maintain all plants native to

park ecosystems. This will be done by preserving native plant populations, restoring native plant populations in parks when they have been extirpated by past human-caused actions and minimizing human impacts on native plants, populations, communities and ecosystems and the process that sustain them.

Guidance for management of rare plants is found in NPS Management Policies Section 4.4.2.3 (Management of Threatened or Endangered Plants and Animals): "The National Park Service will inventory, monitor, and manage state and locally listed species plant species of concern in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance." Adverse impacts to rare plants will be avoided to the extent possible. Impacts that cannot be avoided will be minimized and if possible mitigated via seed collection and plant salvage from on-site or nearby suitable habitats prior to disturbance and re-established following construction. Revegetation, utilizing existing native plant species found in the area, would occur wherever possible according to *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995).

Methodology and Intensity Thresholds

The methodology used for assessing impacts to vegetation and rare plants are based upon the results of the 2006 rare plant survey within the Tower-Roosevelt area planning boundary for the proposed TRCP/EA (see Natural Resource Map Appendix B). This plan compares these survey results with the planning components of buildable planning, planning prescriptions and design guidelines in the action alternatives B and C but not for the no action alternative A. Included in the evaluation of the vegetative communities is the introduction or promotion of non-native species.

The thresholds of change for the intensity of an impact to vegetation and rare plants are defined as follows:

Negligible: The effects to vegetation would not be measureable. Ecological processes would not be affected. No rare plant species or uncommon plant communities would be affected. Individual native plants might be affected, but impacts would be localized, short-term, and of no consequence to the species.

Minor: The action would affect individual native plants in a localized area but would not affect the viability of local or regional populations of rare, endemic, or other plant species of concern. Native vegetation would be affected, but impacts would occur in a relatively minor portion of the species' occurrence(s) within the park. Mitigation measures to offset adverse effects would be proposed. Rare plants or uncommon plant communities could be present and individual plants could be affected, but proposed mitigation measures to avoid adverse impacts to the species or community would be effective.

Moderate: The action would affect the local population sufficiently to cause a change in abundance or distribution on a local scale but would not affect the viability of the regional population of rare, endemic, or other plant species of concern. Changes to localized ecological processes would be of limited extent. A sizable segment of native vegetation within the park would be affected, and proposed mitigation measures would be extensive. Rare plant species or uncommon plant communities could be affected, and proposed mitigation measures to offset adverse effects could be extensive.

Major: the action would affect a regional or local population of a species sufficiently to cause a change in abundance or distribution to the extent that the population would not be likely to return to its former level.

Significant ecological processes would be altered, and landscape-level changes would be expected. Effects on native vegetation within the park, potentially including rare plants or uncommon plant communities would be extensive and long-term. Proposed mitigation measures to offset the adverse effects would be extensive, and success of the mitigation measures would not be guaranteed.

Duration: Short-term effects would last only during the implementation of the project including its mitigation and monitoring measures. Long-term effects would typically constitute a permanent impact.

Impacts of Alternative A to Vegetation and Rare Plants

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones which use rare plant surveys and then avoid or mitigate impacts to these resources. Future projects could occur without design standards that would consolidate facilities and thus mitigate impacts to vegetation resources.

Without a comprehensive plan, impacts to vegetation and rare plants resources could occur and could be more than if a comprehensive plan is not adopted.

Since vegetation and rare plants resources have been surveyed within the planning boundary of the Tower-Roosevelt area and then mapped, resource information would be readily available to guide environmental compliance analyses for these project proposals; potentially resulting in an improvement in efficiency and effectiveness of these separate compliance actions.

Surveys for rare plants outside the planning boundary would be done on a case-by-case basis and efforts to avoid or minimize impacts to rare plants would occur on a case by case basis. Future development may impact identified rare plant sites within the planning boundary and unidentified rare plant sites outside the planning boundary. Guidance for maintaining important vegetation, including trees serving as screening or those contributing to cultural landscapes would be given on a case-by-case basis. The combined impacts to vegetation and rare plants under Alternative A are expected to be short and long-term moderate and adverse.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for moderate impacts from projects are more likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

In Alternative A the combined impacts to vegetation and rare plants are expected to be long-term moderate and adverse.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impacts to vegetation and rare plants. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to vegetation and rare plants. Construction projects in the northeast area of the park would not have more than minor impacts to vegetation and rare plants. Management practices for hazard tree removal, fire suppression, or fire may affect vegetation in the Tower-Roosevelt area. Increased noxious and invasive weed infestations could occur due to increase ground disturbance in the Tower-Roosevelt area. Because of these impacts, the above projects would be expected to have minor, localized impacts to vegetation and rare plants resources. There are no other known construction projects planned in the northeast area of the park that would affect vegetation resources. Cumulative impacts from these past, present, and future actions would have long-term adverse moderate impacts to vegetation and rare plants resources.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. The impacts to vegetation and rare plants from these projects and utilities associated with these projects are expected to be short and long-term, moderate, and adverse. Because there are no planning zones that limit the location of projects, no restrictions on the amount of development footprint that limits the amount of development and no design standards that provide mitigating measures that lessen impacts, impacts are expected to be uncertain and likely increased. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term, moderate adverse impacts to vegetation and rare plants resources.

Because there would be no major adverse impacts to vegetation and rare plants whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Vegetation and Rare Plants

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Most impacts to vegetation would result from increased development and excavation in the Tower-Roosevelt area especially in the Tower Junction and Tower Ranger Station locations. There would be some long-term vegetation loss from possible realignment of the Grand Loop Road. Vegetation loss would occur from possible building and parking construction within undisturbed and existing disturbed areas. Development or redevelopment of utilities within the buildable planning zones would affect vegetation and could affect rare plants.

Most of the vegetation lost would be sagebrush/meadow due to increase development for buildings, parking and utilities. The development footprint accommodates a net gain of up to 21,225 square feet for buildings, 41,250 square feet for paved parking and no net gain for unpaved parking. This compares with the existing development footprint of 115,005 square feet for buildings or 19 % net gain, and 142,322 square feet for paved parking or 29% net gain. This future disturbance could have minor to moderate impacts to vegetation and rare plants due to time for re-growth and the potential increase spreading of exotic plants. Very little, if any, loss of trees is anticipated. Few trees exist in areas that would accommodate future development. Trees important for screening, cultural landscapes, and the forest

edge, would be protected and enhanced. Aspen groves south of the Roosevelt Corrals location would be protected so that only minor impacts would occur. Revegetation, utilizing existing native plant species found in the area, would occur wherever possible and would be undertaken according to *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995).

Rare plant sites would be avoided if at all possible. With the adoption of buildable planning zones, development in the Tower-Roosevelt area mostly avoids rare plants resources. By using resource surveys, these zones limit the location of development. If appropriate, plant and topsoil salvaging would take place according to the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). There may be effects on rare plant sites near the Roosevelt Corrals, the service station and Grand Loop Road with utility projects within the *Natural Buildable Zone*. There may be effects on the Suksdorf's broomrape sites near the service station and the Grand Loop Road in the Circulation Zone. Because the circulation zone and possible road realignment overlaps this rare plant site by approximately 6 %, the impact to this site would be minor.

The potential for spreading exotic plant species during construction would be mitigated by adhering to proper construction practices. A weed control and revegetation plan would incorporate the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). Plant materials used for revegetation would utilize existing native vegetation of the area.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to vegetation and rare plants would need to be less than impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

In alternative B the combined impacts to vegetation and rare plants are expected to be long-term minor to moderate and adverse.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impacts to vegetation and rare plants. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to vegetation and rare plants. Construction projects in the northeast area of the park would not have more than minor impacts to vegetation and rare plants. Management practices for hazard tree removal, fire suppression, or fire may affect vegetation and rare plants in the Tower-Roosevelt area. Increased noxious and invasive weed infestations could occur due to increase ground disturbance in the Tower-Roosevelt area. Because of these impacts, the above projects would be expected to have minor, localized impacts on vegetation and rare plants resources. There are no other known construction projects planned in the northeast area of the park that would affect vegetation and rare plants resources. Cumulative impacts from these past, present, and future actions would have long-term minor impacts to vegetation and rare plants resources.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to vegetation and rare plants from these projects and utilities associated with these projects are expected to be short and long-term, minor to moderate, and adverse. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term minor to moderate adverse

impacts to vegetation and rare plants resources. The guidance provided through the comprehensive planning components minimizes the impacts to vegetation through limited development footprint and vegetation guidelines that support native plant restoration. Planning zones provide locations where resources are least affected.

Because there would be no major adverse impacts to vegetation and rare plants whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Vegetation Rare Plants Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Most impacts to vegetation would result from increased development and excavation in the Tower-Roosevelt area especially the Tower Junction location. Vegetation loss would occur from possible building and parking construction within undisturbed and existing disturbed areas.

Most of the vegetation lost would be sagebrush/meadow due to increase development for buildings, parking and utilities. The development footprint accommodates a net gain of up to 8,050 square feet for buildings, 31,000 square feet for paved parking and no net gain for unpaved parking. This compares with the existing development footprint of 115,005 square feet for buildings or 7% net gain, and 142,322 square feet for paved parking or 22% net gain. This future disturbance could have minor impacts to vegetation and rare plants due to time for re-growth and the potential increase spreading of exotic plants.. Very little, if any, loss of tree cover is anticipated. Trees grow in natural clusters and screen the Roosevelt Lodge location from the Grand Loop Road. Few trees exist in areas that plan for future development. Trees important for screening, cultural landscapes, and maintaining forest edge would be protected and enhanced. Aspen groves south of the Roosevelt Corral location would be protected so that only negligible impacts would occur. Revegetation, utilizing exiting native plant species found in the area, would occur wherever possible and would be undertaken according to *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995).

Rare plant sites would be avoided if at all possible. With the adoption of buildable planning zones, development in the Tower-Roosevelt area mostly avoids rare plants resources. By using resource surveys, these zones limit the location of development. If appropriate, plant and topsoil salvaging would take place according to the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). There may be effects on rare plant sites near the Roosevelt Corrals, the service station and Grand Loop Road with utility projects within the *Natural Buildable Zone*.

The potential for spreading exotic plant species during construction would be mitigated by adhering to proper construction practices. A weed control and revegetation plan would incorporate the *Vegetation Management for Construction Disturbance in Yellowstone National Park* (1995). Plant materials used for revegetation would utilize existing native vegetation of the area.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to vegetation and rare plants would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for

future projects proposed outside the planning boundary are not included in this EA and additional surveys would be required.

In alternative C, the combined impacts to vegetation and rare plants are expected to be long-term minor and adverse.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have impact to vegetation and rare plants. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to vegetation and rare plants. Construction projects in the northeast area of the park that would not have more than minor impacts to vegetation and rare plants. Management practices for hazard tree removal, fire suppression, or fire may affect vegetation in the Tower-Roosevelt area. Increased noxious and invasive weed infestations could occur due to increase ground disturbance in the Tower-Roosevelt area. Because of these impacts, the above projects would be expected to have minor, localized impacts on vegetation and rare plants resources. There are no other known construction projects planned in the northeast area of the park that would affect vegetation and rare plants resources. Cumulative impacts from these past, present, and future actions would have long-term minor impacts to vegetation and rare plants resources.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. The impacts to vegetation and rare plants from these projects and utilities associated with these projects are expected to be short and long term, minor and adverse. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, minor, adverse impacts to vegetation and rare plants resources. Components of the comprehensive plan, such as planning zones provide for facility locations that least impact resources. Design standards consolidate development footprint and provide for native plant restoration to mitigate impacts from construction. Alternative C has less allowable development footprint compared to Alternative B and therefore, less impacts.

Because there would be no major adverse impacts to vegetation and rare plants whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Wildlife

Guiding Regulations and Policies

There are federal laws governing other wildlife not protected by the Endangered Species Act (1973) including the Migratory Bird Protection Act, The Bald Eagle protection Act, and the Lacey act. *Note that threatened and endangered species are considered separately under a separate impact topic. NPS has policies and guidance on the topic of wildlife management. Section 4.4 of 2006 Management Policies addresses biological resource management including general wildlife management. This policy states that NPS will maintain as parts of the natural ecosystems of parks all native plants and animals. More specific

topics covered in this policy include native species, species harvesting, exotic species, and pest management.

Methodology and Intensity Thresholds

Yellowstone National Park wildlife biologists used scientific literature, site-specific information, and professional knowledge to define intensity thresholds (i.e., degree of change) for impacts to wildlife. For these thresholds, the term habitat is defined as the resources (e.g., food, shelter, and range) and environmental conditions (e.g., precipitation, predators) that enable the presence, survival, and reproduction of a population, even if potentially suitable areas are currently unoccupied. Short-term effects are defined as those occurring during the implementation of the project, including conservation measures and monitoring of effects and effectiveness, while longer-term effects are considered permanent.

The thresholds of change for the intensity of impacts to wildlife are defined as follows:

Negligible: Adverse or beneficial impacts on individuals, their habitat, or the key ecosystem processes sustaining them would be extremely unlikely to occur or not measurable.

Minor: Adverse or beneficial impacts on individuals, their habitat, or the key ecosystem processes sustaining them would affect a small, localized portion of the species/ range in the park. Short or long-term disturbances to individuals may occur and/or a small amount of habitat could be permanently modified or removed. Impacts would not measurably affect the migration patterns, or other demographic characteristics of the population (i.e., age/sex structure, recruitment rates, survival rates, movement rates, population sizes, population rates of change).

Moderate: Adverse or beneficial impacts on populations, their habitat, or the key ecosystem processes sustaining them would affect a moderate portion of the species/range in the park. Short or long-term disturbances could measurably affect the migration patterns, or other demographic characteristics of the population (i.e., age/sex structure, recruitment rates, survival rates, movement rates, population sizes, population rates of change). Impacts would not significantly increase the susceptibility of population(s) in or near the park to environmental or demographic uncertainty (e.g., severe winters, droughts, disease epidemics, skewed age or sex ratios).

Major: Adverse or beneficial impacts on populations, their habitat, or the key ecosystem processes sustaining would be long-term and affect a large proportion of a species range in the park. The susceptibility of population(s) in or near the park to environmental or demographic uncertainty would significantly increase.

Duration: Short-term effects would last only during the implementation of the project including its mitigation and monitoring measures. Long-term effects would typically constitute a permanent impact.

Impacts of Alternative A to Wildlife

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to wildlife resources could occur and could be more than if a comprehensive plan is not adopted.

The Yancey's Hole location is good habitat for bears and has seen increased use in recent years. Bears or other wildlife are attracted to food sources associated with the cook out facilities. Changes to facilities at the Yancey's Hole location would not have long-term adverse effect to wildlife and could have long-term beneficial effect due to better food hygiene with improved surfaces. There is a local effect at the Yancey's Hole location when bears are hazed from the area to protect visitors safety. This effect could be short or long term disturbance to individuals.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for moderate impacts from projects are more likely. This assumption is due to the possibility of year round use for new development at the Tower Junction location. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

An increase in visitation in the northeast part of the park, including the Tower-Roosevelt area, due to the popularity of wildlife watching, has created minor effects to wildlife due to increase wildlife traffic jams, vehicle strikes to wildlife and other human-wildlife interactions.

The Tower-Roosevelt area is popular for viewing black and grizzly bears close to the road. Roads affect bears through a variety of human activities associated with and facilitated by improved access (McLellan 1990). Park roads within or adjacent to bear habitat can affect individual bears both directly and indirectly. Direct effects include human-caused bear mortality, including vehicle strike losses, and loss of habitat due to expanding development. In particular, road reconstruction projects in YNP including the Tower-Roosevelt area are expected to increase vehicle strike mortality of grizzly and black bears due increase speeds from road widening and new surfaces. Indirect effects include reduction of habitat effectiveness due to human-caused displacement of bears from high quality habitat adjacent to road corridors. Bears may also be indirectly affected by roads through habituation to humans and other behavior modifications.

Reconstruction of the Grand Loop and Northeast Entrance Roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have additional impacts on wildlife. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to wildlife. Wildlife could be temporarily displaced due to ground disturbance and noise during construction projects. Improved road surface and wider road widths could increase traffic speed and collisions with animals, resulting in increased wildlife mortalities. Other road construction projects would continue in and near the park, including reconstruction of the four mile section of the Northeast Entrance Road of road between the Northeast Entrance Gate and the park boundary, the Lamar River Bridge and the Beartooth Highway. These construction projects would cause short-term, minor impacts to wildlife due to ground disturbance and noise.

There are no other known construction projects planned in the northeast area of the park that would affect wildlife resources. Because of these impacts, the above projects would be expected to have long-term, minor, and adverse impacts to wildlife resources. Cumulative impacts resulting from these past, present, and future actions would have short and long-term minor impacts to wildlife.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. Construction projects could cause short-term, minor impacts to wildlife due to ground disturbance and noise. The possibility of year round use for new development at the Tower Junction location could cause long-term, moderate impacts to wildlife. The impacts to wildlife from these projects and utilities associated with these projects are expected to be short and long-term, minor to moderate, and adverse. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term, minor to moderate adverse impacts to wildlife resources.

Because there would be no major adverse impacts to wildlife whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Wildlife Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. There would be no measurable disturbance of non-habituated resident or migratory wildlife such as pronghorn, bison, deer, elk, bighorn sheep, black bears, peregrine falcons, and osprey, including the distribution, reproduction, or survival of wildlife species or the demography of populations. Important wildlife habitat would remain intact.

An increase in development at the Tower Junction location could lead to a minor displacement of wildlife and could result in a minor loss of wildlife habitat. This could have an increased effect on localized wildlife movements. The spring, fall and particularly winter months are when wildlife are most susceptible to impacts. Because the development at the Tower Junction location would remain closed in the winter months in this action alternative, the adverse impacts to wildlife are minor. Realignment of the Grand Loop Road could reduce important wildlife habitat north of the road in Pleasant Valley, however, the maximum 100 foot offset from centerline is considered a minor effect.

There could be increases to facilities in the Roosevelt Lodge and in the Tower Administrative locations. These areas are already developed and are not considered important wildlife habitat.

Changes to the Tower Fall Store, including removal or reduction, would not affect wildlife in the Tower Fall Trailhead location because it is not prime wildlife habitat and most migration through the area occurs when the existing store is closed.

The Yancey's Hole location is good habitat for bears and has seen increased use in recent years. Bears or other wildlife are attracted to food sources associated with the cook out facilities. Changes to facilities at the Yancey's Hole location would not have long-term adverse effect to wildlife and could have long-term beneficial effect due to better food hygiene with improved surfaces. There is a local effect at the

Yancey's Hole location when bears are hazed from the area to protect visitors safety. This effect could be short or long term disturbance to individuals.

Short-term displacement of wildlife could occur due to construction activity. Wildlife could be temporarily displaced from habitat adjacent to the development sites due to construction equipment and activity for the duration of a project. No increases in wildlife mortalities are anticipated. Construction workers would follow park protocols to minimize effects on wildlife.

Building design could minimize human-made wildlife habitat, such as decks and wide roof-overhangs, which often attract birds and rodents.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to wildlife would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

An increase in visitation in the northeast part of the park, including the Tower-Roosevelt area, due to the popularity of wildlife watching, has created minor effects to wildlife due to increase wildlife traffic jams, vehicle strikes to wildlife and other human-wildlife interactions.

The Tower-Roosevelt area is popular for viewing black and grizzly bears close to the road. Roads affect bears through a variety of human activities associated with and facilitated by improved access (McLellan 1990). Park roads within or adjacent to bear habitat can affect individual bears both directly and indirectly. Direct effects include human-caused bear mortality, including vehicle strike losses, and loss of habitat due to expanding development. In particular, road reconstruction projects in YNP including the Tower-Roosevelt area are expected to increase vehicle strike mortality of grizzly and black bears due increase speeds from road widening and new surfaces. Indirect effects include reduction of habitat effectiveness due to human-caused displacement of bears from high quality habitat adjacent to road corridors. Bears may also be indirectly affected by roads through habituation to humans and other behavior modifications.

Reconstruction of the Grand Loop and Northeast Entrance Roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have additional impacts on wildlife. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to wildlife. Wildlife could be temporarily displaced due to ground disturbance and noise during construction projects. Improved road surface and wider road widths could increase traffic speed and collisions with animals, resulting in increased wildlife mortalities. Other road construction projects would continue in and near the park, including reconstruction of the four mile section of the Northeast Entrance Road of road between the Northeast Entrance Gate and the park boundary, the Lamar River Bridge and the Beartooth Highway. These construction projects would cause short-term, minor impacts to wildlife due to ground disturbance and noise.

There are no other known construction projects planned in the northeast area of the park that would affect wildlife resources. Because of these impacts, the above projects would be expected to have long-term, minor, and adverse impacts to wildlife resources. Cumulative impacts resulting from these past, present, and future actions would have short and long-term minor impacts to wildlife.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. Some long term displacement of individual wildlife could occur due to a minor increase in visitor services and visitation at Tower Junction. Increase development at Tower Junction could affect movements of individual wildlife. Construction projects would cause short-term, minor impacts due to ground disturbance and noise. The impacts to wildlife from these projects and utilities associated with these projects are expected to be short and long-term, minor, and adverse. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse impacts to wildlife resources.

Because there would be no major adverse impacts to wildlife whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Wildlife

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to development could have a minor effect to wildlife and their natural habitat. There would be no measurable disturbance of non-habituated resident or migratory wildlife such as pronghorn, bison, deer, elk, bighorn sheep, black bears, peregrine falcons, and osprey, including the distribution, reproduction, or survival of wildlife species or the demography of populations. Important wildlife habitat would remain intact.

An increase in development at the Tower Junction location could lead to a minor displacement of wildlife and would result in a minor loss of wildlife habitat. This could have an increased effect on localized wildlife movements. The spring, fall and particularly winter months are when wildlife are most susceptible to impacts. Because the development at the Tower Junction location would remain closed in the winter months in this action alternative, the adverse impacts to wildlife are minor. Realignment of the Grand Loop Road could reduce important wildlife habitat north of the road in Pleasant Valley, however, the maximum 100 foot offset from centerline is considered a minor effect.

There could be increases to facilities in the Roosevelt Lodge and in the Tower Administrative locations. These areas are already developed and are not considered important wildlife habitat.

Short-term displacement of wildlife could occur due to construction activity. Wildlife could be temporarily displaced from habitat adjacent to the development sites due to construction equipment and activity for the duration of a project; however displacement is less in Alternative C than in Alternative B because less development is anticipated. No increases in wildlife mortalities are anticipated. Construction workers would follow park protocols to minimize effects on wildlife.

Building design would minimize the creation of human-made wildlife habitat, such as decks and wide roof overhangs that often attract rodents and birds. Other changes in development in Alternative C are not significant enough to have effects on wildlife.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to wildlife would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects

proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

An increase in visitation in the northeast part of the park, including the Tower-Roosevelt area, due to the popularity of wildlife watching, has created minor effects to wildlife due to increase wildlife traffic jams, vehicle strikes to wildlife and other human-wildlife interactions.

The Tower-Roosevelt area is popular for viewing black and grizzly bears close to the road. Roads affect bears through a variety of human activities associated with and facilitated by improved access (McLellan 1990). Park roads within or adjacent to bear habitat can affect individual bears both directly and indirectly. Direct effects include human-caused bear mortality, including vehicle strike losses, and loss of habitat due to expanding development. In particular, road reconstruction projects in YNP including the Tower-Roosevelt area are expected to increase vehicle strike mortality of grizzly and black bears due to increase speeds from road widening and new surfaces. Indirect effects include reduction of habitat effectiveness due to human-caused displacement of bears from high quality habitat adjacent to road corridors. Bears may also be indirectly affected by roads through habituation to humans and other behavior modifications. (Parkwide Road Biological Assessment, 2007)

Reconstruction of the Grand Loop and Northeast Entrance Roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, would have additional impacts on wildlife. The Canyon Junction to Tower Junction Road Improvement EA (2001) found long-term, minor impacts to wildlife. Wildlife could be temporarily displaced due to ground disturbance and noise during construction projects. Improved road surface and wider road widths could increase traffic speed and collisions with animals, resulting in increased wildlife mortalities. Other road construction projects would continue in and near the park, including reconstruction of the four mile section of the Northeast Entrance Road of road between the Northeast Entrance Gate and the park boundary, the Lamar River Bridge and the Beartooth Highway. These construction projects would cause short-term, minor impacts to wildlife due to ground disturbance and noise.

There are no other known construction projects planned in the northeast area of the park that would affect wildlife resources. Because of these impacts, the above projects would be expected to have long-term, minor, and adverse impacts to wildlife resources. Cumulative impacts resulting from these past, present, and future actions would have short and long-term minor impacts to wildlife.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Some long term displacement of individual wildlife could occur due to a minor increase in visitor services and visitation at Tower Junction. Increase development at Tower Junction could affect movements of individual wildlife. Construction projects would cause short-term, minor impacts due to ground disturbance and noise. The impacts to wildlife from these projects and utilities associated with these projects are expected to be short and long-term, minor, and adverse. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse impacts to wildlife resources.

Because there would be no major adverse impacts to wildlife whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be

no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Threatened and Endangered Species

(Canada Lynx and Gray Wolves)

Guiding Regulations and Policies

Protective measures for threatened and endangered species are provided pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Section 7(c) of the Endangered Species Act of 1973, as amended, requires the preparation of a biological assessment for any federal action that is a major construction activity to determine the effects of the proposed action on listed and proposed species. If a biological assessment is not required (i.e., all other actions), the lead federal agency is responsible for review of proposed activities to determine whether listed species will be affected. If it is determined that the proposed activities may affect a listed species, then federal agencies should contact the U.S. Fish and Wildlife Service to discuss consultation requirements. If it is determined that any federal agency program or project “is likely to adversely affect” any listed species, then formal consultation should be initiated with the U.S. Fish and Wildlife Service. Alternatively, informal consultation can be continued so the U.S. Fish and Wildlife Service can assist with determining how the project could be modified to reduce impacts to listed species to the “not likely to adversely affect” threshold. If it is concluded that the project “is not likely to adversely affect” listed species, then the federal agency should request that the U.S. Fish and Wildlife Service review the assessment and concur with the determination of not likely to adversely affect.

Methodology and Intensity Thresholds

Impacts to threatened species in Yellowstone National Park were evaluated by YNP wildlife biologists. Evaluations of threatened and endangered species were completed using records sightings within at least three miles (5 km) of Tower-Roosevelt area, records of sightings, and knowledge of habitats. The evaluation of effects included direct, indirect, interrelated, interdependent, and cumulative impacts as defined by the Endangered Species Act (ESA).

Consultation with the U.S. Fish and Wildlife Service (USFWS) will occur for this plan. Mitigation proposed by the park for impacts on threatened or endangered species could include avoidance, minimization, and conservation measures as agreed upon by the USFWS.

The thresholds of change for the intensity of impacts to threatened and endangered species are defined as follows:

Negligible: No federally listed species or its proposed or designated critical habitat would be affected. A “negligible effect” corresponds to a “no effect” determination by the park for §7, ESA purposes. Informal consultation with the USFWS might occur, but would not be required.

Minor: Effects are insignificant, discountable, or beneficial to individual members of the species, or effects tend to be localized, temporary, and of little negative consequence to individuals particularly those stemming from human disturbance or habitat modification. A “minor effect” corresponds to a determination by the park of “may affect, but not likely to adversely affect” the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes. The USFWS must concur with this determination during consultation.

Moderate: Adverse effects are readily detectable and localized for individuals. A “moderate” effect corresponds to a determination by the park of “may affect, likely to adversely affect” the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes and requires formal consultation with the USFWS. Mitigation would include measures proposed by the park and terms and conditions required by the USFWS to minimize the adverse effects to individuals.

Major: Adverse effects are readily detectable at the population level and widespread. A “major effect” corresponds to a determination by the park of “may affect, likely to adversely affect” the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes and requires formal consultation with the USFWS. Numerous mitigations proposed by the park and terms and conditions required by the USFWS would result in significant changes to the project to reduce the adverse impacts. However, if it is determined that the project (even after implementing the avoidance, minimization, and conservation measures) would jeopardize the continued existence of the species, the USFWS could issue reasonable and prudent alternatives to the project.

Duration: Short-term effects would last only during the implementation of the project including its mitigation and monitoring measures. Long-term effects would typically constitute a permanent impact.

Impacts of Alternative A to Threatened and Endangered Species

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to Canada lynx and gray wolves could occur and could be more than if a comprehensive plan is not adopted.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor impacts from projects are more likely. This assumption is due to the possibility of year round use for new development at the Tower Junction location. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts to threatened and endangered species. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no impairment to threatened and endangered species. Overall widening and improvement of the road surface, together with loss of habitat, could lead to cumulative impacts. No other known construction projects are planned in this area. Park-

wide projects that could contribute to cumulative effects include roads and facilities reconstruction or improvement projects, subsequent visitor use of improved roads and facilities, and fire management. Because of these impacts, the above projects would be expected to have minor (may affect, but not likely to adversely affect), localized impacts to Canada lynx and gray wolves. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to Canada lynx and gray wolves.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. Construction projects could cause short-term, minor impacts to gray wolves due to ground disturbance and noise. The possibility of year round use for new development at the Tower Junction location could cause long-term, minor impacts to gray wolves. These projects and utilities associated with these projects are expected to have minor impacts with “may affect, but are not likely to adversely affect” gray wolves. When combined with past, present, and foreseeable future actions, Alternative A could have long-term minor impacts to threatened or endangered species.

Because there would be no major adverse impacts to Canada lynx and gray wolves whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone’s establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Threatened and Endangered Species

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Increased development, including realignment of the Grand Loop Road at the Tower Junction location could cause loss of natural areas; however, there would be no net loss in habitat quality or quantity important for Canada lynx. All projects would be outside Lynx Analysis Units.

Increased development, particularly at the Tower Junction location, may affect movements of gray wolves. However, adult wolves are tolerant of human facilities in developed areas and along roads in Yellowstone National Park, and wolves do not appear to avoid the portions of their pack territories that are in close proximity to roads or park developments.

Development changes in Alternative B could have minor effects to gray wolves due to increase in visitors and construction. Increases in traffic pose a small risk of vehicle-strike mortality to wolves. This would be mitigated with contractor orientation, public education and road speed design through the development.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to threatened or endangered species would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts to threatened and endangered species. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no impairment to threatened and endangered species. Overall widening and improvement of the road surface, together with loss of habitat, could lead to cumulative impacts. No other known construction projects are planned in this area. Park-wide projects that could contribute to cumulative effects include roads and facilities reconstruction or improvement projects, subsequent visitor use of improved roads and facilities, and fire management. Because of these impacts, the above projects would be expected to have minor (may affect, but not likely to adversely affect), localized impacts to Canada lynx and gray wolves. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to Canada lynx and gray wolves.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. Construction projects could cause short-term, minor impacts due to ground disturbance and noise. Under Alternative B, there would be minor impacts that “may affect, but are not likely to adversely affect” Canada lynx. There may be indirect, localized, long-term minor effects on gray wolves due to increase visitor use. These impacts “may affect, but are not likely to adversely affect”, gray wolves. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse impacts to threatened or endangered species.

Because there would be no major adverse impacts to Canada lynx and gray wolves whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone’s establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Threatened and Endangered Species

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to development would not affect the ability of threatened and endangered species to exist in their natural habitat. There would be no measurable impacts to threatened or endangered species such as Canada lynx and gray wolves.

Changes in development would not cause any loss of natural areas and there would be no net loss of habitat quality or quantity important for Canada lynx. All projects would be outside Lynx Analysis Units.

Increased development within existing areas may, but is not likely to have effects to the movements of gray wolves. Adult wolves are tolerant of human facilities in developed areas and along roads in Yellowstone National Park, and wolves do not appear to avoid the portions of their pack territories that are in close proximity to roads or park developments.

Development changes in Alternative C could have negligible to minor effects to gray wolves due to increase in visitors and construction. Increases in traffic pose a small risk of vehicle-strike mortality to wolves. This would be mitigated with contractor orientation, public education and road speed design through the development.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to threatened or endangered species would need to be less than or

equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts to threatened and endangered species. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no impairment to threatened and endangered species. Overall widening and improvement of the road surface, together with loss of habitat, could lead to cumulative impacts. No other known construction projects are planned in this area. Park-wide projects that could contribute to cumulative effects include roads and facilities reconstruction or improvement projects, subsequent visitor use of improved roads and facilities, and fire management. Because of these impacts, the above projects would be expected to have minor (may affect, but not likely to adversely affect), localized impacts to Canada lynx and gray wolves. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to Canada lynx and gray wolves.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Construction projects could cause short-term, minor impacts due to ground disturbance and noise. Under Alternative C, there would be negligible to minor impacts and “may affect, but is unlikely to adversely affect” Canada lynx and gray wolves. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, negligible to minor adverse impacts to threatened or endangered species.

Because there would be no major adverse impacts to Canada lynx and gray wolves whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone’s establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Natural Soundscapes

Guiding Regulations and Policies

The National Park Service preserves, to the greatest extent possible, the natural soundscapes of the park (NPS 2006, Sec. 4.9). Intrusive sounds are a concern to park visitors: a system-wide survey revealed that nearly as many visitors come to national parks to enjoy the natural soundscape (91%) as come to view the scenery (93%).

36 CFR § 2.12 specifically prohibits operating motorized equipment or machinery (e.g., electric generating plants, motor vehicles, or motorized toys) or audio devices (e.g., radio, television set, tape deck or musical instrument) in a manner that exceeds a noise level of 60 dBA at 50 feet.

Methodology and Intensity Thresholds

Analyses of the potential intensity of soundscape impacts were derived from available information on levels in the Tower-Roosevelt area and park staff knowledge and observations of both visitor and employee use, and construction activities.

The thresholds of change for the intensity of impacts to natural soundscapes are defined as follows:

Negligible: Impacts to the natural soundscapes would be barely detectable or changes would be short-term, slight and localized.

Minor: Impacts to the natural soundscapes would be short-term or long-term, and localized. The change would be noticeable but would not negatively affect the character of the site or its relationship to or dominance in the surrounding natural setting.

Moderate: Impacts to the natural soundscape would be long-term and obvious. Effects would noticeably change the impression of the immediate site and the character of the overall setting.

Major: Changes to the soundscape would be significant. Changes would be long-term, considerable, and widespread, with negative changes considered obtrusive. Obvious differences would change the character and overall impression of the area and its association with and dominance within the surrounding natural setting.

Duration: Short-term effects would last during construction of a facility, typically up to three months. Long-term effects would be anything beyond the construction of a facility through the life of the facility, including maintenance activities.

Impacts of Alternative A to Natural Soundscapes

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to natural soundscapes could occur and could be more than if a comprehensive plan is not adopted.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor to moderate impacts to natural soundscapes are more likely. This assumption is due to no guidelines, restrictions or design standards for new development and the possibility of year round use for new development at the Tower Junction location. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on soundscapes in the short-term due to heavy construction. There could be some small short-term minor adverse impacts due to construction.

No other known construction projects are planned in this portion of the park that could affect soundscapes. Current public and NPS use of facilities and nearby roadways add non-natural sound sources to the natural soundscape. Aircraft over flights including research, search and rescue, general aviation, and high commercial aircraft also could add a cumulative effect. Because of these impacts, the above projects are expected to have short and long-term, minor, and adverse impacts to soundscapes. Cumulative impacts from these past, present, and future actions could have long-term minor to moderate impacts to natural soundscapes.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. Construction projects could cause short-term, minor to moderate impacts to the natural soundscapes. These projects and utilities associated with these projects are expected to have long-term minor to moderate impacts the natural soundscapes. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term minor to moderate and adverse impacts to threatened or endangered species.

Because there would be no major adverse impacts to soundscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Natural Soundscapes

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Construction projects could cause short-term, minor impacts to the natural soundscapes. This would be localized noise associated with construction projects. The increase in development in the Tower-Roosevelt area could affect natural soundscapes due to increased development including traffic, and operations along the Grand Loop Road, within historic districts and administrative areas. Reducing or eliminating the Tower Fall general store at the Tower Fall Trailhead location could have a beneficial effect by reducing non-natural sounds of traffic and visitors.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to threatened or endangered species would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on soundscapes in the short-term due to heavy construction. There could be some small short-term minor adverse impacts due to construction.

No other known construction projects are planned in this portion of the park that could affect soundscapes. Current public and NPS use of facilities and nearby roadways add non-natural sound sources to the natural soundscape. Aircraft over flights including research, search and rescue, general aviation, and high commercial aircraft also could add a cumulative effect. Because of these impacts, the above projects are expected to have short and long-term, minor, and adverse impacts to soundscapes. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to soundscapes.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. Construction projects could cause short-term, minor impacts due noise. Increase in development could affect natural soundscapes in the Tower Junction location due to increased traffic and operations along the Grand Loop Road, within historic districts and administrative areas. Reducing or eliminating the Tower Fall general store at the Tower Fall Trailhead location could have localized beneficial impact on non-natural sounds by reducing the volume of traffic and visitors. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse and beneficial impacts to the natural soundscapes.

Because there would be no major adverse impacts to soundscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Natural Soundscapes

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. The increases in development in the Tower Junction location would be less than Alternative B; therefore there could be negligible to minor effects on natural soundscapes. Reducing the Tower Fall general store at the Tower Fall Trailhead location could have a beneficial effect by reducing non-natural sounds of traffic and visitors. There would also be localized, short-term minor noises with construction projects.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to the natural soundscapes would need to be less than or equal to impacts described in this EA for this alternative as short and long term minor and adverse and beneficial. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be.

Cumulative Impacts

Reconstruction of the Grand Loop and Northeast Entrance roads within and beyond the Tower-Roosevelt area, including the Lamar River Bridge, could have impacts on soundscapes in the short-term due to heavy construction. There could be some small short-term minor adverse impacts due to construction.

No other known construction projects are planned in this portion of the park that could affect soundscapes. Current public and NPS use of facilities and nearby roadways add non-natural sound sources to the natural soundscape. Aircraft over flights including research, search and rescue, general aviation, and high commercial aircraft also could add a cumulative effect. Because of these impacts, the above projects are expected to have short and long-term, minor, and adverse impacts to soundscapes. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to soundscapes.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Construction projects could cause short-term, minor impacts to soundscapes. Reducing or eliminating the Tower Fall general store at the Tower Fall Trailhead location could have localized beneficial impact on non-natural sounds by reducing the volume of traffic and visitors. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, minor to negligible adverse and beneficial impacts to the natural soundscapes.

Because there would be no major adverse impacts to soundscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

CULTURAL RESOURCES

In this environmental assessment, impacts on cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council of Environmental Quality (CEQ) that implement NEPA. These impact analyses are intended to comply with the requirements of both NEPA and §106 of the NHPA. In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts on cultural resources were also identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected, National Register eligible or listed cultural resources; and (4) considering ways to avoid, minimize or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of adverse effect or no adverse effect would be made for affected National Register listed or eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for the National Register, such as diminishing the integrity of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register.

The CEQ regulations and the NPS's Conservation Planning, Environmental Impact Analysis and Decision Making (Director's Order #12) also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, such as reducing the

intensity of an impact from major to moderate or minor. Any reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by §106 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. If actions are determined to have an adverse effect under §106 and may be mitigated, the effect remains adverse.

Archeological Resources

Guiding Regulations and Policies

Director's Order (DO) #28A supplements DO #28: "Cultural Resources Management".

The authority to issue this Director's Order is found in 16 USC 1 through 4 (the National Park Service Organic Act), in the delegations of authority contained in Part 245 of the Department of the Interior Manual (245 DM 1), and in the responsibilities set forth in Part 519 of the Department of the Interior Manual (519 DM 1 and 519 DM 2).

There are other statutes and implementing regulations that authorize and guide the NPS's management of archeological resources on NPS lands, and NPS archeological assistance to other public agencies and organizations and individuals.

Methodology and Intensity Thresholds

Only the actual physical material of cultural resources can answer certain important research questions about human history. Archeological resources have the potential to answer, in whole or in part, such questions. An archeological resource is eligible for the National Register of Historic Places, if it meets one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of our history;
- It is associated with the lives of persons significant in our past;
- It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possess high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- It has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the archeological resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association (National Register Bulletin, Guidelines for Evaluating and Registering Archeological Properties).

Archeological resources were only assessed within the planning boundary, (See Cultural Resource Map, Appendix B Map). All possible projects described for the action alternatives are within this planning boundary. Compliance for future projects proposed outside this planning boundary has not been completed and additional surveys would be required. In order for NEPA Compliance to be complete for implementation of future projects, the impacts to archeology would need to be less than or equal to the impacts described in this EA.

For purposes of analyzing impacts on archeological resources either listed in or eligible to be listed in the National Register, the thresholds of change for intensity of an impact are defined as follows:

Negligible: Impact is at the lowest levels of detection—barely measurable, with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of §106, the determination of effect would be no adverse effect.

Minor: Adverse: Disturbance of a site results in little or any loss of significance or integrity and the National Register eligibility of the site is unaffected. For purposes of §106, the determination of effect would be no adverse effect.

Beneficial: Maintenance preservation of a site. For purposes of §106, the determination of effect would be no adverse effect.

Moderate: Adverse: Disturbance of a site does not diminish the significance or integrity of the site to the extent that its National Register eligibility is jeopardized. For purposes of §106, the determination of effect would be adverse effect.

Beneficial: Stabilization of the site. For purposes of §106, the determination of effect would be no adverse effect.

Major: Adverse: Disturbance of a site diminishes the significance and integrity of the site to the extent that it is no longer eligible to be listed in the National Register. For purposes of §106, the determination of effect would be adverse effect.

Beneficial: Active intervention to preserve the site. For purposes of §106, the determination of effect would be no adverse effect.

Duration: Short-term effects would last during construction of a facility, typically up to three months. Long-term effects would be anything beyond the construction of a facility through the life of the facility, including maintenance activities.

Impacts of Alternative A to Archeological Resources

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to archeological resources could occur and could be more than if a comprehensive plan is not adopted.

Since archeological resources have been recently surveyed within the planning boundary of the Tower-Roosevelt area and then mapped, resource information would be readily available to guide environmental

compliance analyses for these project proposals; potentially resulting in an improvement in efficiency and effectiveness of these separate compliance actions.

Surveys for archeological resources outside the planning boundary would be done on a case-by-case basis and efforts to avoid or minimize impacts to archeological resources would occur on a case by case basis. Future development may impact identified archeological resources sites within the planning boundary and unidentified archeological resources sites outside the planning boundary. The combined impacts to archeological resources under the no action alternative are expected to be short and long-term moderate and adverse.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for moderate impacts from projects are more likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Road construction of the Grand Loop Road and the Northeast Entrance Road could have impacts on archeological sites. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to archeological resources. Because of these impacts, the above projects would be expected to have minor, localized impacts to archeological resources. Cumulative impacts from these past, present, and future actions could have long-term minor to moderate impacts to archeological resources

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. Without the benefit of planning zones which site projects in locations where archaeological impacts are lessened, impacts could increase; project could occur in fragile archaeological areas. Without the benefit of limits on development footprint, projects could expand in ways that impact resources. Without design standards, consolidation of projects and limitations on excavation would not protect resources. The plan provides for these mitigating measures. The impacts to archeological resources from these projects and utilities associated with these projects are expected to be long-term, moderate, and the determination of effect would be adverse effect. When combined with past, present, and foreseeable future actions, Alternative A could have long-term, moderate adverse impacts to archeological resources.

Because there would be no major adverse impacts to archeological resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Archeological Resources

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. There could be disturbance in an archeological site at the Yancey's Hole location due to excavation for foundations of a replacement dining

and serving shelter and installation of additional vault toilets. Mitigation could be required. Mitigation could include careful site selection to minimize or avoid impacts to the archeological site and/or monitoring of excavation or data recovery before construction. This could result in long-term moderate and the §106 determination of adverse effect but disturbance of the site would not jeopardize its National Register eligibility. Resources related to the history of Yancey's settlement would not be disturbed by development.

There could be impacts to archeological sites at the Tower Junction location, the north side of the Grand Loop Road, and the Roosevelt Corral locations due to construction of facilities and utilities. These sites have had prior disturbance, and partial data has been recovered. Future disturbances have been or would be mitigated according to law and policy. Mitigation could include careful site selection to minimize or avoid impacts to the archeological site and/or monitoring of excavation or data recovery before construction.

Construction zones could be identified and fenced prior to any activity. If previously undiscovered archeological resources are discovered during construction, work in the immediate vicinity of the discovery would cease until the resources could be identified and documented, and an appropriate mitigation strategy developed in consultation with the Wyoming State Historic Preservation Office (SHPO). Additional compliance beyond the scope of this EA would be necessary.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone* other than Yancey's Hole, impacts to archeological resources would need to be less than impacts described in this EA for this alternative as long term minor and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road construction of the Grand Loop Road and the Northeast Entrance Road could have impacts to archeological sites. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to archeological resources. Because of these impacts, the above projects would be expected to have long-term minor, impacts to archeological resources. Cumulative impacts from these past, present, and future actions could have long-term moderate impacts to archeological resources.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to archeological resources from these projects and utilities associated with these projects are expected to be long-term, moderate and the determination of effect would be adverse effect. Mitigating measures are provided in Chapter 2 of the comprehensive Plan. They are also included in the design standards which consolidate projects and reduce excavation in areas where archaeology is present. On-site archaeologists, fencing and other mitigation is proposed to lessen impacts in Alternative B. When combined with past, present, and foreseeable future actions, Alternative B could have long-term, minor adverse impacts to archeological resources.

Because there would be no major adverse impacts to archeological resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Archeological Resources

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. The disturbance in an archeological site at the Yancey's Hole location would be minimal because the excavation for foundations of a replacement dining and serving shelter would be in-kind replacement. Mitigation could be required. Mitigation could include monitoring of excavation. This could result in long-term minor and the §106 determination of effect would be no adverse effect. Resources related to the history of Yancey's settlement would not be disturbed by development.

There could be impacts to archeological sites at the Tower Junction location, the north side of the Grand Loop Road, and the Roosevelt Corral locations due to construction of facilities and utilities. These sites have had prior disturbance, and partial data has been recovered. Future disturbances have been or would be mitigated according to law and policy. Mitigation could include careful site selection to minimize or avoid impacts to the archeological site and/or monitoring of excavation or data recovery before construction.

Construction zones could be identified and fenced prior to any activity. If previously undiscovered archeological resources are discovered during construction, work in the immediate vicinity of the discovery would cease until the resources could be identified and documented, and an appropriate mitigation strategy developed in consultation with the Wyoming State Historic Preservation Office (SHPO). Additional compliance beyond the scope of this EA would be necessary.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to archeological resources would need to be less than or equal to impacts described in this EA for this alternative as long term minor and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road construction of the Grand Loop Road and the Northeast Entrance Road could have impacts to archeological sites. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to archeological resources. Because of these impacts, the above projects would be expected to have long-term minor, impacts to archeological resources. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to archeological resources.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Because the development footprint in Alternative C is less than in Alternative B, the impacts are less. The comprehensive plan provides for planning zones which limit the location of projects to lessen impacts to archaeological resources. Development footprint is limited particularly where fragile archaeological resources are located thus lessening the potential for impacts. Fencing and on-site archaeologists may be provided if needed. Design standards consolidate projects and utility corridors and minimize excavation which could impact resources. Data recovery has already been provided for many of the sites located within the planning boundary. These measures reduce the possible effects. The impacts to archeological resources from these projects and utilities associated with these projects are expected to be long-term, minor and the determination of effect would be no adverse effect. When combined with

past, present, and foreseeable future actions, Alternative C could have long-term, minor adverse impacts to archeological resources.

Because there would be no major adverse impacts to archeological resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Historic Resources

Guiding Regulations and Policies

In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to historic properties including cultural landscapes for this project were identified and evaluated by (1) determining the area of potential effect (APE); (2) identifying cultural resources present in the area of potential effect that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Methodology and Intensity Thresholds

A historic site, structure, or building is eligible for the National Register of Historic Places if it meets one or more of the following criteria A through D:

- A. It is associated with events that have made a significant contribution to the broad patterns of our history;
- B. It is associated with the lives of persons significant in our past;
- C. *It embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master; or possesses high artistic value; or represents a significant and distinguishable entity whose components may lack individual distinction;*
- D. It has yielded, or may be likely to yield, information important in prehistory or history.

A historic building or structure must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Section 106 (§106) consultation (as described in the NHPA of 1966, as amended) with the Wyoming SHPO will occur for a proposed project. The Advisory Council on Historic Preservation is invited to participate if a proposed project is considered a major undertaking.

Federal law and NPS management policies require full consideration of historical and architectural values whenever a project may affect historic properties. Additionally, the NPS "must to the maximum extent possible, undertake such planning and action as may be necessary to minimize harm to any National Historic Landmark that may be directly and adversely affected by an undertaking" (36 CFR 800.10).

Analyses of the potential intensity of impacts on historic resources were derived from a review of the List of Classified Structures, researching park records to determine the potential eligibility of historic

resources, on-site investigations to determine proximity to historic resources, and through personal communications with park staff.

The thresholds of change for the intensity of impact to historic resources are defined as follows:

Negligible: Historic resources would not be affected or the effects would be below the level of detection. A “negligible effect” corresponds to a “no effect” determination by the park for §106 purposes. Informal consultation with the SHPO might occur, but would not be required.

Minor: Effects to historic resources would be detectable (e.g., minor replacement of deteriorated historic fabric with new, in-kind material, or minor external alterations that do not affect the character-defining features of the structure or building), although the effects would result in little, if any, loss of significance or integrity. The National Register eligibility of the historic resource would not be affected by the project. A “minor effect” corresponds to a “no adverse effect” determination by the park for §106 purposes. Consultation with the SHPO would occur.

Moderate: Effects to historic resources would be readily detectable, would have the potential to diminish the significance or integrity of the site, structure, or building, and may jeopardize its National Register eligibility. A “moderate effect” corresponds to either an “adverse effect” or a “no adverse effect” for §106 purposes, depending on mitigation measures proposed. Mitigation measures resulting from consultation could include conservation measures to stabilize the site, structure, or building; Historic American Building Survey (HABS) level photography and/or as-built construction drawings; large-scale, in-kind replacement of historic fabric or use of simulated materials to replicate historic fabric; reuse of portions of the historic structure or building; or design of the new structure or building to preserve elements of form and function of the historic structure or building.

Major: Effects to historic resources would be obvious, long-term, and would diminish the significance and integrity of the site, structure, or building to the extent that it is no longer eligible for listing in the National Register. A “major effect” would correspond to an “adverse effect” for §106 purposes.

Duration: Short-term effects would last during construction of a facility, typically up to three months. Long-term effects would be anything beyond the construction of a facility through the life of the facility, including maintenance activities.

Impacts of Alternative A to Historic Resources

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to historic resources could occur and could be more than if a comprehensive plan is not adopted.

Alternative A would not have planning components with design standards for future facilities with potential to affect historic districts. New buildings and structures would not have comprehensive planning design standards to guide their scale, style, materials or placement. Changes and improvements to existing buildings within the Roosevelt Lodge Historic District would follow guidance set by the Roosevelt Lodge Historic Structures Report (1993).

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor impacts from projects are more likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Ongoing road construction projects throughout the park that alter the alignment or character of the Grand Loop Road could have cumulative impacts. The historic integrity of contributing features would be preserved. Under the Canyon Junction to Tower Junction Road Improvement Project, a section of the road will be moved at the Calcite Springs Overlook to improve safety at the parking area. Graceful alignment would be maintained and the natural character of the road would be improved with separation of the road from the parking area. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to historic resources. Replacement of the Lamar River Bridge may also have cumulative effects on historic properties. Because of these impacts, the above projects would be expected to have minor impacts to historic resources. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to historic resources.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. Without the components of the comprehensive plan, such as planning zones that limit where projects can occur, historic resources could be impacted by projects located in ways that impact resources. New construction could occur next to historic properties without the guidance of design standards that describe the character that would best protect historic properties. Colors, materials, style and design could be detrimental in incremental ways to these resources. The impacts to historic resources from these projects and utilities associated with these projects are expected to be long-term, minor, and the determination of effect would be no adverse effect. When combined with past, present, and foreseeable future actions, Alternative A could have long-term, minor adverse impacts to historic resources.

Because there would be no major adverse impacts to historic resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Historic Resources Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. The Roosevelt Lodge Historic District

and Tower Ranger Station Junction Historic District could accommodate some expansion of the existing footprint. In the Roosevelt Lodge location, additional cabins could be accommodated along the two entrance roads. In the Tower Ranger Station location, new buildings could be constructed to replace the existing backcountry office where they would not affect the view and dominance of the Tower Ranger Station. Changes to existing buildings and new buildings would maintain historic scale, style, and materials. General layout and historic circulation patterns within historic districts would be maintained. Mitigation would include building designs meeting the Secretary of the Interior's Standards for the Treatment of Historic Properties. Though some growth in development is possible, the small scale, rustic character of the Tower-Roosevelt developments would be preserved.

New buildings on the south side of the Grand Loop Road at the Tower Junction location, with realignment of the road within 100 feet of existing alignment, would have a localized effect on the Grand Loop Road Historic District. Graceful alignment of the road would be maintained and would continue to preserve the integrity of the historic district. Buildings would blend with the natural setting and elements contributing to the Grand Loop Road Historic District.

In the portion of the Tower Administrative location that is located within the Tower Ranger Station Historic District, all changes to existing buildings and new buildings would maintain historic character. Outside the historic district, new NPS housing and an emergency services building would be compatible with existing historic buildings.

The Tower Junction service station and the Tower Fall General Store, which are potentially Mission 66 buildings, could be remodeled or removed. The park is currently undertaking a park-wide assessment of all potential Mission 66 era historic properties. These buildings would be evaluated under this parkwide context. Demolition of these historic buildings would be an adverse effect to historic properties if they are found to be eligible to the National Register. Historic American Building Survey (HABS) documentation has been completed, in the event the buildings are remodeled or removed.

Beneficial impacts would include redesigned parking in front of the lodge and stabilization of historic buildings. Ongoing consultation with the Wyoming SHPO, for all changes with potential impacts on historic properties would ensure the compatibility of new buildings and structures within the historic districts.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to historic resources would need to be less than or equal to impacts described in this EA for this alternative as long term minor and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Ongoing road construction projects throughout the park that alter the alignment or character of the Grand Loop Road would have cumulative impacts. The historic integrity of contributing features would be preserved. Under the Canyon Junction to Tower Junction Road Improvement Project, a section of the road will be moved at the Calcite Springs Overlook to improve safety at the parking area. Graceful alignment would be maintained and the natural character of the road would be improved with separation of the road from the parking area. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to historic resources. Replacement of the Lamar River Bridge may also have cumulative effects on historic properties. Because of these impacts, the above projects would be

expected to have minor, impacts on historic resources. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to historic resources.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The benefits of the planning components would allow projects to be placed such that historic views are maintained. Materials, scale, style and color would be harmonious with the historic properties due to the adherence to design standards in this alternative. The size of the development footprint would be limited by the planning prescriptions so that the character of the area is not changed in ways that would impact the historic properties such as buildings that are too large and overwhelm the location. The impacts to historic resources from these projects and utilities associated with these projects in the Roosevelt Lodge, Tower Ranger Station, and the Grand Loop Road Historic Districts are expected to be long-term, minor and the determination of effect would be no adverse effect. When combined with past, present, and foreseeable future actions, Alternative B could have long-term, minor adverse impacts to historic resources.

Because there would be no major adverse impacts to historic resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Historic Resources

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. The existing historic districts of Roosevelt Lodge location and Tower Ranger Station location would accommodate a low level of change. Historic integrity would be maintained. There would be no expansion of the existing developed areas, and changes to existing buildings and new buildings would maintain historic character by using the scale, style, design and materials that complement historic buildings. The layout and historic circulation patterns within historic districts would be maintained, including cluster arrangements for cabins in the Roosevelt Lodge Historic District. The small scale, rustic character of the Roosevelt Lodge and cabins location and Roosevelt Corral location horse operations would be maintained.

There would be minimal additional development along the Grand Loop Road. The existing road alignment would remain the same and elements contributing to the Grand Loop Road Historic District would maintain its historic integrity. Changes to existing buildings would maintain the natural setting and those elements contributing to the Grand Loop Road Historic District (NPS rustic style).

In those portions of the Tower Administrative location that are within the Tower Junction Ranger Station Historic District, buildings would be minimally required to be the same style or scale as historic buildings. All changes to existing historic buildings would maintain the historic character.

The service station at Tower Junction location could be remodeled or removed and the Tower Fall General Store at the Tower Fall Trailhead location could be remodeled, both of which are potentially eligible as Mission 66-era buildings. The park is currently undertaking a park-wide assessment of all potential Mission 66 era historic properties. These buildings would be evaluated under this parkwide context. Demolition of these historic buildings would be an adverse effect to historic properties, if they are

found to be eligible to the National Register. Historic American Building Survey (HABS) documentation has been completed, in the event the buildings are remodeled or removed.

Beneficial impacts would include redesigned parking in front of the lodge and stabilization of historic buildings. Ongoing consultation with the Wyoming SHPO, for all changes with potential impacts on historic properties, would ensure the compatibility of new buildings and structures within the historic districts.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to historic resources would need to be less than or equal to impacts described in this EA for this alternative as long term minor and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Ongoing road construction projects throughout the park that alter the alignment or character of the Grand Loop Road would have cumulative impacts. The historic integrity of contributing features would be preserved. Under the Canyon Junction to Tower Junction Road Improvement Project, a section of the road will be moved at the Calcite Springs Overlook to improve safety at the parking area. Graceful alignment would be maintained and the natural character of the road would be improved with separation of the road from the parking area. The Canyon Junction to Tower Junction Road Improvement EA (2001) found no adverse effect to historic resources. Replacement of the Lamar River Bridge may also have cumulative effects on historic properties. Because of these impacts, the above projects would be expected to have minor, impacts on historic resources. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to historic resources.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Alternative C allows for impacts that are less than Alternative B as the planning components provide less development footprint. The expansion in the area is less and impacts would be less. Design standards provide for scale, color, materials and style to be compatible with historic properties, minimizing impacts. Planning zones locate development in areas that protect critical historic views. Utilities are consolidated and placed so that views are screened. Parking expansion will be screened according to the design standards for each location so that historic properties are protected. The impacts to historic resources from these projects and utilities associated with these projects in the Roosevelt Lodge, Tower Ranger Station, and the Grand Loop Road Historic Districts are expected to be long-term, negligible to minor and the determination of effect would be no adverse effect. When combined with past, present, and foreseeable future actions, Alternative C could have long-term, negligible to minor adverse impacts to historic resources.

Because there would be no major adverse impacts to historic resources whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Cultural Landscapes

Guiding Regulations and Policies

In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to historic properties including cultural landscapes for this project were identified and evaluated by (1) determining the area of potential effect (APE); (2) identifying cultural resources present in the area of potential effect that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Methodology and Intensity Thresholds

Information on cultural landscapes in the Tower-Roosevelt area was obtained through personal communications with park staff and through a literature search. The 2007 Cultural Landscape Inventory (CLI) provided the most up-to-date information.

The thresholds of change for the intensity of impacts to cultural landscapes are defined as follows:

Negligible: Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be no adverse effect.

Minor: Adverse impact: Alteration of a pattern or feature of the landscape would not diminish the overall integrity of the landscape. The determination of effect for §106 would be no adverse effect.

Beneficial impact: Preservation of landscape patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes. The determination of effect for §106 would be no adverse effect.

Moderate: Adverse impact: Alteration of a pattern or feature of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be adverse effect. A Memorandum of Agreement (MOA) is executed among the NPS and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts will reduce the intensity of impact under NEPA from major to moderate.

Beneficial impact: Rehabilitation of a landscape or its patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes. The determination of effect for §106 would be no adverse effect.

Major: Adverse impact: Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be adverse effect. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the NPS and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Beneficial impact: Restoration of a landscape or its patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes. The determination of effect for §106 would be no adverse effect.

Duration: Short-term effects would last during construction of a facility, typically up to three months. Long-term effects would be anything beyond the construction of a facility through the life of the facility, including maintenance activities.

Impacts of Alternative A to Cultural Landscapes Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National Park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Without a comprehensive plan, there are not any guidelines, restrictions or mitigation that would achieve the goals set in a comprehensive plan. Future projects locations could occur without the guidance of buildable planning zones. Future projects sizes and functions could occur without restrictions of planning prescriptions. Future projects design and appearances could occur without design standards that would mitigate impacts to resources and visitor experiences.

Without a comprehensive plan, impacts to cultural landscapes could occur and could be more than if a comprehensive plan is not adopted.

There would be no planning components that ensure the preservation, or guide the enhancement, of cultural landscape features. Elements that contribute to the integrity of historic districts including circulation, vegetation and building layout patterns, and views would not necessarily be recognized or preserved when evaluating project proposals on a case-by-case basis. For example, it is possible that the entrance roads for both the Tower Ranger Station and the Roosevelt Lodge Historic Districts would be moved or widened, future cabin placement would not follow historic layout patterns, and vegetation which helps create the natural setting is not preserved or replaced. Buildings placed on the edge of historic districts that are out of scale with historic buildings are also a concern as they can diminish the overall character and impression of the district.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor to moderate impacts from projects are more likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

There have been changes to the cultural landscape associated with the Roosevelt Lodge location, including the introduction of additional cabins and a change in how the entrance road joins the Grand Loop Road. There is now a paved parking area in front of the Roosevelt Lodge. Despite this change, the overall integrity of the Roosevelt Lodge Historic District is intact. Past changes to the Grand Loop Road Historic District in this area are negligible. Changes to the Tower Ranger Station Historic District are mostly the addition of structures associated with area operations and administration, including a weather station and spring box near the ranger station, and multiple buildings and structures in those portions of the Tower Administrative location that are within the Tower Junction Ranger Station Historic District.

Construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. Housing construction projects and rehabilitation of historic buildings would continue

throughout Yellowstone National Park. Because of these impacts, the above projects would be expected to have minor impacts to cultural landscapes. Cumulative impacts from these past, present, and future actions could have long-term minor to moderate impacts to cultural landscapes.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. The impacts to historic resources from these projects and utilities associated with these projects are expected to be long-term, minor to moderate, and a §106 determination of effect could be adverse effect. When combined with past, present, and foreseeable future actions, Alternative A could have long-term, minor to moderate adverse impacts to cultural landscapes.

Because there would be no major adverse impacts to cultural landscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Cultural Landscapes

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Planning components including design guidelines would address adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Cultural Landscapes and the available Cultural Landscape Inventories within historic districts and would set a maximum size and general placement for additional buildings both within historic districts and throughout Tower-Roosevelt area, which would help preserve the overall integrity of cultural landscapes.

Cultural landscape features and patterns contributing to the Roosevelt Lodge Historic District would be preserved. The natural view from the Roosevelt Lodge porch would be enhanced by screening and redesign of the parking areas to reduce the visual impact of parked cars. The view would be maintained. The meadow that is traversed on the approach to the lodge could be reduced in size by building and parking at the Tower Junction location with additional cabins along the entrance road to Roosevelt Lodge. However, an open space would serve as a separation between these two additional developments. The dry creek bed would be preserved. The historic layout and cluster arrangements for buildings would be preserved. Where possible historic vegetation such as specimen trees, tree groupings, screening and forest edge would be retained. The Roosevelt Lodge would remain the dominant building; little change in development would occur within the district and no new buildings would appear larger or create a greater presence than the lodge. Development at The Tower Junction location could have an effect on the overall character of the area, particularly the entrance of the Roosevelt Lodge. Although this development is outside the Roosevelt Lodge Historic District, buildings would be visible from the historic district and would directly affect the visitor experience and the desired condition of a small, secluded lodge in a natural setting. This same development could also be viewed from the Tower Ranger Station location and would have an effect on the character of that historic district.

Within the Roosevelt Lodge Historic District, planning components including design guidelines would address the Secretary of the Interior's Standards for the Treatment of Historic Properties within historic districts, which would help preserve the overall integrity of cultural landscapes.

Cultural landscape features and patterns contributing to the Tower Ranger Station Historic District would be preserved. Although this area would accommodate new buildings, a visitor contact station would be located and designed so the Tower Ranger Station would remain the dominant building. The ranger station would continue to command a view of the road and Pleasant Valley and would be seen when approaching along the Grand Loop and Northeast Entrance roads. Little change in development would occur within the district other than improved parking which would preserve or improve the character of the district by being located away from the narrow entrance road and screened from view. The Tower Administrative location would remain visually and physically separate from the ranger station; hidden behind a screen of trees. The corrals would remain intact. The construction of housing and emergency services building in those portions of the Tower Administrative location that are outside the historic district would not be in scale with historic buildings and therefore would indirectly affect the character of the adjacent historic district. Within the Tower Ranger Station Historic District, planning components including design guidelines would ensure adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties within historic districts, which would help preserve the overall integrity of cultural landscapes.

Cultural landscape features and patterns contributing to the Grand Loop Road Historic District would largely be preserved, although the road alignment at Tower Junction could change. It would, however, continue to lie on the land with a graceful alignment. Development at the Tower Junction location would affect the character of a park road in a natural setting. Design improvements to the parking area at Tower Fall Trailhead location would enhance the character of a natural setting in this location. The removal or reduction of the Tower Fall general store and improvements to the parking area would enhance the natural setting in this location and would also be a beneficial impact to the Grand Loop Road Historic District at the Tower Fall Trailhead location. Within the Grand Loop Road Historic District, planning components including design guidelines would address the Secretary of the Interior's Standards for the Treatment of Historic Properties within historic districts, which would help preserve the overall integrity of cultural landscapes.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to cultural landscapes would need to be less than or equal to impacts described in this EA for this alternative as long term minor and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

There have been changes to the cultural landscape associated with the Roosevelt Lodge location, including the introduction of additional cabins and a change in how the entrance road joins the Grand Loop Road. There is now a paved parking area in front of the Roosevelt Lodge. Despite these changes, the overall integrity of the Roosevelt Lodge Historic District is intact. Past changes to the Grand Loop Road Historic District in this area are negligible. Changes to the Tower Ranger Station Historic District are mostly the addition of structures associated with area operations and administrative, including a weather station and spring box near the ranger station, and multiple buildings and structures in that portion of the Tower Administrative location that is within the district.

Construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. Housing construction projects and rehabilitation of historic buildings would continue throughout Yellowstone National Park. Because of guidance set forth in the TRCP, these impacts of the above projects would be expected to have minor impacts to cultural landscapes. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to cultural landscapes.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to cultural landscapes from these projects and utilities associated with these projects in the Tower-Roosevelt area are expected to be long-term, minor and adverse and beneficial and the §106 determination of effect would be no adverse effect. When combined with past, present, and foreseeable future actions, Alternative B could have long-term, minor adverse impacts to historic resources.

Because there would be no major adverse impacts to cultural landscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Cultural Landscapes Impact Analysis

In Alternate C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Design guidelines would address the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guideline for the Treatment of Cultural Landscapes and the available Cultural Landscape Inventories within historic districts and would set a maximum size for buildings both within historic districts and throughout Tower-Roosevelt area, which would help preserve the overall integrity of cultural landscapes.

Cultural landscape features and patterns contributing to the Roosevelt Lodge Historic District would be preserved: the view from the Roosevelt Lodge porch would remain natural or would be enhanced by improvements to parking areas to reduce the visual impact of parked cars. The meadow that is traversed on the approach to the lodge would remain. The dry creek bed would be preserved. The same layout and cluster arrangements for buildings would be preserved. Contributing vegetation patterns such as individual trees, tree groupings, screening and forest edge would be retained and would be enhanced around new development. The Roosevelt Lodge would remain the dominant building.

Cultural landscape features and patterns contributing to the Tower Junction Ranger Station Historic District would be preserved: the view of Pleasant Valley from the Tower Ranger Station would remain; the Tower Administrative location would remain visually and physically separate from the ranger station; and the corrals would remain intact. The ranger station would remain the dominant building. Planning components including design guidelines would ensure adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes within historic districts, which would help preserve the overall integrity of cultural landscapes.

Cultural landscape elements contributing to the Grand Loop Road Historic District would be preserved. The road alignment at Tower Junction would remain the same with minor adjustments for improved design, and would continue to lie on the land with grace and alignment. New development at the Tower

Junction location would be limited to improvement of existing facilities which would enhance the impression of a park road in a natural setting. Design improvements to the parking area at Tower Fall Trailhead location would enhance the character of a natural setting. Planning components including design guidelines would ensure adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties within historic districts, which would help preserve the overall integrity of cultural landscapes.

For implementation of possible projects in the TRCP buildable planning zones, especially utilities in the *Natural Buildable Zone*, impacts to cultural landscapes would need to be less than or equal to impacts described in this EA for this alternative as long term negligible and the determination of effect would be no adverse effect. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

There have been changes to the cultural landscape associated with the Roosevelt Lodge location, including the introduction of additional cabins and a change in how the entrance road joins the Grand Loop Road. There is now a paved parking area in front of the Roosevelt Lodge. Despite these changes, the overall integrity of the Roosevelt Lodge Historic District is intact. Past changes to the Grand Loop Road Historic District in this area are negligible. Changes to the Tower Ranger Station Historic District are mostly the addition of structures associated with area operations and administrative, including a weather station and spring box near the ranger station, and multiple buildings and structures in the area of the historic road camp.

Construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. Housing construction projects and rehabilitation of historic buildings would continue throughout Yellowstone National Park. Because of these impacts, the above projects would be expected to have minor, impacts to cultural landscapes. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to cultural landscapes.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. The impacts to cultural landscapes from these projects and utilities associated with these projects in the Tower-Roosevelt area are expected to be long-term, negligible adverse and minor beneficial and the §106 determination of effect would be no adverse effect. When combined with past, present, and foreseeable future actions, Alternative C could have long-term, minor adverse impacts to historic resources.

Because there would be no major adverse impacts to cultural landscapes whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Health and Human Safety

Guiding Regulations and Policies

The National Park Service is concerned about the safety for visitors and employees and will work to enhance visitor and employee safety (NPS 2006).

The *NPS Management Policies* state that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. The policies also state, "While recognizing that there are limitations on its capability to totally eliminate all hazards, the National Park Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees" (sec. 8.2.5.1). Further, the NPS will strive to protect human life and provide for injury-free visits (sec. 8.2.5).

Methodology and Intensity Thresholds

The impact intensities for visitor and park staff safety are as follows.

Negligible: The impact to visitor and park staff safety would not be measurable or perceptible.

Minor: The impact to visitor and park staff safety would be measurable and perceptible and would involve a large number of individuals in a localized area of the park. Automobile accidents rates could increase in a localized area.

Moderate: The impact to visitor and park staff safety would be measurable and perceptible and would involve a large number of individuals in many areas of the park. Automobile accidents rates could increase at several locations.

Major: The impact to visitor and park staff safety would be substantial and parkwide in occurrence. Accident rates in areas usually limited to low accident potential would be expected to substantially increase in the short and long-term and impacts to the safety of individuals would be readily apparent throughout the park.

Duration: Short-term impacts would last during facility construction, typically less than 1-2 months. Long-term impacts would occur throughout the life of the facility, taking into consideration operation and maintenance of the facility.

Impacts of Alternative A to Human Health and Safety

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis. Cumulative impacts would be difficult to assess.

There are several existing concerns and proposed projects that affect human health and safety in the Tower-Roosevelt area. The Tower Junction location has congestion and conflicting uses as vehicles and horses cross the roads. Parking in different locations is not organized or defined, parking at the Tower Fall Trailhead location has no separation from the Grand Loop Road. Visitors wait for wagon rides on open benches without shade. There are hazardous gas vents near Tower Fall Trail which originates

within the planning boundary. Finally, part of the Roosevelt Lodge cabins and the Tower Administrative location have soil types that could be potentially susceptible to debris flows if triggered by a significant precipitation event.

In Alternative A, the combined impacts to human health and safety are expected to be long term minor to moderate and adverse.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for long-term, minor to moderate adverse impacts from projects are likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect human health and safety; however, long-term effects would be minor. Possible projects would be designed to reduce human health and safety in visitor and employee use areas. There are no known projects to remedy the safety risks with multiple (vehicular/horse) crossings or issues of congestion at the Tower Junction area, however, these could be addressed in the Tower to Canyon road project. Effects of these projects to the Tower-Roosevelt area would be minor because of mitigation to resources through sensitive design. Because of these impacts, the above projects would be expected to have minor, adverse impacts to human health and safety. Cumulative impacts from these past, present, and future actions could have long-term minor and adverse to human health and safety because of the uncertainty associated with the lack of a coordinated plan.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. The impacts to human health and safety from these projects and utilities associated with these projects are expected to be long-term, minor to moderate, and adverse. When combined with past, present, and foreseeable future actions, Alternative A could have long-term, minor to moderate adverse impacts to human health and safety because it is uncertain whether the safety issues would be resolved or if the impacts would be mitigated similarly to the proposed comprehensive plan.

Because there would be no major adverse impacts to human health and safety whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Human Health and Safety Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to the Tower-Roosevelt area could affect human health and safety through parking area design, traffic facilitation, organization of uses within locations, and through projects that address specific safety issues (such as shade and shelter from the elements for visitors waiting for activities.) Congestion could be reduced through adequate parking

design. Improved parking areas in various locations in the Tower-Roosevelt area could facilitate traffic and congestion by improving organization and delineation for parking. Improving parking at the Tower Ranger Station location could facilitate traffic and reduce congestion. Improving parking areas in front of the Roosevelt Lodge, Roosevelt Corrals, Tower Ranger Station, Tower Junction, and Tower Fall Trailhead locations could have a beneficial impact to visitor safety. Parking in these areas is not designed for the current vehicle size and number. Through the comprehensive planning process, future projects would accommodate appropriate parking configurations and accident rates would be reduced. Unpaved parking would be limited to the existing quantity and would not expand. Vehicle and horse crossings would be minimized to reduce unsafe conditions. However, increased development at the Tower Junction location and the entrance to the Roosevelt Lodge location in Alternative B could add to traffic in this area. New parking, while organized, could add to the visitor use in the area. The comprehensive plan addresses other safety issues such as potential debris flows and protection from the elements. Additional cabins could not be placed in areas prone to precipitation event caused debris flows. Building a new shade shelter would provide visitors protection from climatic exposure. Removal or reduction of the Tower Fall General Store would have a beneficial impact by removing or reducing the facility from the potentially unstable lake sediment soil.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to human health and safety would need to be less than to the impacts described in this EA for this alternative to remain long term minor and adverse. Compliance for future projects proposed outside the planning boundary is not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect human health and safety; however, long-term effects would be minor. Possible projects would be designed to reduce human health and safety concerns for visitor and employee use areas. Effects of these projects identified in Alternative B to the Tower-Roosevelt area would be minor. Impacts would be mitigated through the measure described in Chapter 2. Because of these impacts, the above projects would be expected to have minor, adverse and beneficial impacts to human health and safety. Cumulative impacts from these past, present, and future actions could have long-term minor adverse and beneficial impacts to human health and safety.

Conclusion

In Alternative B, future projects would proceed with the guidance of a comprehensive plan. Alternative B is expected to have effects on human health and safety that are direct, local, short and long-term, moderate adverse and moderate beneficial impacts. Many of the potential projects in Alternative B improve health and safety issues such as traffic facilitation and safe parking options. Shade from elements and limiting expansion in areas where soils may potentially be undesirable are also aspects of Alternative B. While visitor use may increase in the Tower Junction location under Alternative B, impacts to health and safety are minimized through sensitive design standards applied under the plan. When combined with past, present, and foreseeable future actions, Alternative B would have short and long-term moderate adverse and moderate beneficial impacts to human health and safety.

Because there would be no major adverse impacts to human health and safety whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would

not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Human Health and Safety Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to the Tower-Roosevelt area could affect human health and safety. While less increased development at the Tower Junction location is identified in Alternative C than in Alternative B; even minor expansion could add to traffic and congestion. Improved parking areas in various locations in the Tower-Roosevelt area could facilitate traffic and congestion by improving organization and delineation for parking. Improving parking at the Tower Ranger Station location could facilitate traffic and congestion. Improving parking areas in front of the Roosevelt Lodge, Tower Junction, Roosevelt Corrals, Tower Ranger Station, and Tower Fall Trailhead locations could have a beneficial impact to visitor safety. Parking in these areas would accommodate current vehicle sizes and separate traffic from the Grand Loop Road which would enhance safety in these areas. Additional development could not be placed in areas potentially prone to precipitation event caused debris flows, eliminating potential safety issues. Building a new shade shelter would provide protection from climatic exposure to visitors waiting for activities. Reduction of the Tower Fall General Store could have a beneficial impact by reducing the facility from the potentially unstable lake sediment soil.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to human health and safety would need to be less than or equal to the impacts described in this EA for this alternative as long term minor and adverse. Alternative C accomplishes this through the planning zones and use of design standards to minimize impacts to human health and safety through installations that meet park design standards. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect human health and safety; however, long-term effects would be minor. Possible projects would be designed to reduce human health and safety concerns for visitor and employee use area in Alternative C. Parking congestion and safety could be reduced through this alternative. While some additional development is anticipated at the Tower Junction location, implementation of the design standards such as physically separating parking from the Grand Loop Road would enhance visitor safety. Organizing and consolidating the parking at the Roosevelt Corral location would also provide a safer environment for visitors. Effects of these projects to the Tower-Roosevelt area would be minor adverse and beneficial. Because of these impacts, the above projects would be expected to have minor, and adverse and beneficial to human health and safety. Cumulative impacts from these past, present, and future actions could have long-term minor adverse and beneficial impacts to human health and safety.

Conclusion

In Alternative C, future projects would proceed with the guidance of a comprehensive plan. Alternative C is expected to have effects on human health and safety that are direct, local, short and long-term, minor

adverse and moderate beneficial impacts such as enhanced safety from consolidated, organized parking and crossings for pedestrians and horses. Shade and shelter from elements for waiting visitors will enhance health and safety. Limiting development in areas where potential geologic hazards may occur will provide future safety. Organizing parking in high use areas such as Roosevelt Lodge or Tower Fall Trailhead would enhance visitor safety. When combined with past, present, and foreseeable future actions, Alternative C would have short and long-term, minor adverse and moderate beneficial impacts to human health and safety.

Because there would be no major adverse impacts to human health and safety whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Visual Resources

Guiding Regulations and Policies

Reference Manual 53 guides action on proposals for park development. NPS Management Policies (2006) consider scenic views and visual quality as highly valued characteristics.

Section 4.10 of the 2006 Management Policies states that "The Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human caused light...Recognizing the roles that light and dark periods and darkness play in natural resource processes and the evolution of species, the Service will protect natural darkness and other components of the natural lightscape in parks".

Methodology and Intensity Thresholds

Analyses of the potential intensity of visual quality impacts were derived from available information regarding desired views in the Tower-Roosevelt area and park staff's records and past observations of the effects to those desired views (visual quality) from development, visitor use, and area operations, including construction activities. Analyses of the potential intensity of lightscape impacts were derived from available information regarding night lighting and its impact on the dark night sky and on nighttime desired visual quality. Park staff's records and past observations of the effects of construction activities on lightscapes supplemented the analysis.

The desired visual quality for the Tower-Roosevelt area is: "Maintaining the overall visual impression of small, rustic developments in a natural setting".

The thresholds of change for the intensity of impacts on visual quality, including lightscapes, are defined as follows:

Negligible: Changes to the visual quality of the landscape, including nighttime quality, would be barely detectable or changes would be short-term, small and localized.

Minor: Changes to the visual quality of the landscape, including nighttime quality would be short-term or long-term small and localized to an area in the park. The change is noticeable but does not negatively affect the character of the site or its relationship to or dominance in the surrounding natural setting.

Moderate: Changes to the visual quality of the landscape, including nighttime quality, would be long term and obvious in many areas of the park. There could be an effect of an area to other areas. Effects would noticeably change the impression of the immediate site and the character of the overall setting.

Major: Changes to the visual quality of the landscape, including nighttime quality, would be significant and occur parkwide. Changes would be long term, considerable, and widespread, with negative changes considered obtrusive at the parkwide level. Obvious differences would change the character and overall impression of the area, its association with and dominance within the surrounding natural setting.

Duration: Short-term effects would be less than one year. Long-term effects would continue beyond one year.

Impacts of Alternative A to Visual Resources

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National Park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis. Without a comprehensive plan, there would not be direction or coordination of the projects in this alternative. Impacts would be difficult to assess because of the uncertainty associated with the projects.

Without guidance that helps maintain and enhance the appearance of development in the Tower-Roosevelt area, there is the potential to affect visual quality including lightscapes, through inappropriate placement, height, size, materials and architectural style. The combined impacts to visual quality including lightscapes under the no action alternative are expected to be short and long-term moderate and adverse.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor to moderate impacts from projects are likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect scenic views and visual resources of the road corridor; however, long-term effects would be minor. Possible projects would not be mitigated using the comprehensive plan's design standards to reduce visual effects and night light from road corridors and historic districts and visitor use areas. Effects of these projects to the Tower-Roosevelt area could be minor to moderate. Because of these impacts, the above projects would be expected to have minor, adverse impacts to visual quality and the natural lightscape. Cumulative impacts from these past, present, and future actions could have long-term minor to moderate adverse impacts to visual quality including lightscapes. Without the restrictions for color, height, building massing, screening, night lighting and other elements in the design standards, projects could have an uncertain visual impact.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis. Impacts would not be restricted by the planning zone locations where impacts to resources are minimized, development footprints could be larger, and design standards would not influence the visual consistency or character within park locations. The impacts to visual quality including lightscapes from these projects and utilities associated with these projects are expected to be long-term, moderate, and adverse. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term, minor to moderate adverse impacts to visual quality including lightscapes as mitigation for impacts would not be provided through the plan. For example, development would not be screened, building masses would not be limited, and exterior colors would not relate to the historic character of the location without the design standards found in the comprehensive plan.

Because there would be no major adverse impacts to visual quality and the night sky whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Visual Resources

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to the Grand Loop Road at Tower Junction would be noticeable but would not affect the character of the road passing through a natural setting; design standards within the plan facilitate the retention of character. Increased development at the Tower Junction location of a maximum of 9,000 square feet net gain of development footprint for buildings and 35,400 square feet net gain for paved parking would change the visual character of the immediate area and the natural setting of Pleasant Valley. Design standards provide screening between the parking areas and the valley so that reflective surfaces in parking areas do not impact valley views. Shifting the road to accommodate more development would reduce the visual impacts to the cuts in the hillside behind the development. Increased development at the entrance to the Roosevelt Lodge location would change the character of a small, rustic development that is tucked into the trees. Vegetative screening is encouraged in the design standards to reduce the visual impact in this location. Architectural styles and building mass addressed in the design standards would reduce the visual impact. Additional parking areas would contribute to visual effects, though planning zones indicate less visible locations for this function. Planning components and mitigation measures (including materials, colors, building size, scale, and screening) would minimize effects. Fill slopes at the Tower Fall trailhead location, and cut slopes behind the service station at the Tower Junction location would permanently change the shape of natural landforms. Mitigation to lessen these impacts is included in the design standards for these locations.

Increased development around the Tower Ranger Station location would be visible when approaching the area from the west, but would be small and inconsequential. Additional parking to serve the improved visitor contact station would be evident when approaching from the west. Additional cabins along the two entrance roads to the Roosevelt Lodge location would reduce the impression of separation this development has from the Grand Loop Road. The negative affect would be lessened with tree screening and cabin grouping; building sizes would be compatible with existing structures.

Important historic views associated with the Roosevelt Lodge and the Tower Ranger Station Historic Districts would be preserved through implementation of the design standards for setting. Improvement of the parking area in front of the Roosevelt Lodge would have beneficial impact to views from the lodge.

Removal of the Tower Fall General Store would have a beneficial visual resource impact to the natural setting of the Tower Fall Trailhead; reduction of the parking area would enhance the circulation in the remaining area. Improvement of the parking area to include screening of vehicles from the Grand Loop Road would also be a beneficial visual impact.

The construction of NPS housing and an emergency services building in the Tower Administrative location would be seen from the Grand Loop Road and Pleasant Valley and would result in this developed area becoming more visible. Development footprint and primary function are compatible with existing buildings in this area. Building heights and roofing materials are addressed in the design standards to reduce the visibility in this location.

There would be a short-term, visual impact associated with construction, including earthwork, heavy equipment, and staging in the Tower Junction location which is in view of visitors traveling the Grand Loop Road. Staging would occur within the site.

There could be nighttime visual impacts due to increased development, particularly at the Tower Junction location. Mitigation measures would include the use of fully shielded light fixtures and compliance with Yellowstone Night Lighting Guidelines, referenced in the design standards. Existing lighting at the service station would be improved, which would be a beneficial impact. There would also be short-term impacts on the night-time visual resources from construction.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to visual quality including lightscapes would need to be less than to the impacts described in this EA for this alternative as short and long term minor and adverse. Since all utilities in this planning zone are underground, visual impacts would be minimized. Vegetation disturbances due to trenching are mitigated in Chapter 2. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect scenic views and visual resources of the road corridor; however, long-term effects could be minor. Possible projects would be mitigated to reduce visual effects and night light from road corridors and historic districts and visitor use areas. Effects of these projects to the Tower-Roosevelt area could be minor and adverse. Because of these impacts, the above projects would be expected to have minor, adverse impacts to visual quality and the natural lightscape. Cumulative impacts from these past, present, and future actions could have long-term minor adverse impacts to visual quality including lightscapes.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to visual quality including lightscape from these projects and utilities associated with these projects are expected to be short and long-term, moderate, and adverse. Increased development footprint in this location has been mitigated through the use of planning zones which indicate locations where resources are least impacted. Design standards describe building height, mass, color and architectural characteristics which lessen visual impacts, including lightscapes. Parking areas are screened and consolidated to reduce visual impacts across the valley. While development may increase in the Tower

Junction location in Alternative B, increasing visual impacts in this location, development may decrease at the Tower Fall Trailhead location, decreasing visual impacts in this location. All changes meet the guidance of the comprehensive plan and the mitigation measures found in Chapter 2. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, moderate adverse impacts to visual quality including lightscapes.

Because there would be no major adverse impacts to visual quality and the night sky whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Visual Resources

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. In Alternative C, the development footprint at the Tower Junction is smaller than that described in Alternative B. It is 2,000 square feet of net gain for buildings and 15,000 square feet of net gain for paved parking. In this location, the overall visual character of a small rustic development in a natural setting adjacent to the historic Roosevelt Lodge would be maintained through the design standards for building height, mass, and architectural character. Development footprint is accommodated in planning zones such that resources are least impacted. Design standards retain the historic character of the Roosevelt Lodge using building sizes that are similar to existing structures and smaller than the Historic Lodge. This alternative could accommodate the replacement of the service station and restrooms in the Tower Junction location with additional parking. Primary functions and development footprint are compatible visually with services in this area. The design standards indicate that the parking could be screened and placed into the hillside with minimal cuts required. All construction activities, such as staging would be limited to the site. Improvements to the service station, restrooms and parking areas at the Tower Junction location could be beneficial to visual resources in the area due to screening from the open views and compatible architectural character.

Future improvements to the existing Tower Fall General Store could have beneficial visual impacts with an improved architectural style. Important historic views associated with the Roosevelt Lodge and the Tower Ranger Station Historic Districts could be preserved through the design standards found within the plan.

The construction of NPS housing and an emergency services building in the Tower Administrative location could have minimal visual impact on views from the Grand Loop Road and Pleasant Valley; the limited development footprint is mitigated by the design standards which describe building masses, heights, roofing materials and architectural character similar to existing historic structures in this location.

There could be localized, short-term, visual changes associated with construction, including earthwork, heavy equipment, and staging.

There could be nighttime visual impacts due to increased development, particularly at Tower Junction. Mitigation measures would include the use of fully shielded light fixtures and compliance with Yellowstone Night Lighting Guidelines referenced in the design standards. Existing lighting at the service station could be improved, which could produce a beneficial impact. There could also be short-term impacts on the night-time visual resources from construction.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to visual quality and the natural lightscapes would need to be less than or equal to the impacts described in this EA for this alternative as short and long term negligible to minor and adverse. Utilities allowed in this zone are underground, trenching would be mitigated using the techniques described in the mitigation measures in Chapter 2. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road widening associated with the Tower to Canyon road construction project could affect scenic views and visual resources of the road corridor; however, long-term effects would be minor. Possible projects would be mitigated to reduce visual effects and night light from road corridors and historic districts and visitor use areas. Effects of these projects to the Tower-Roosevelt area could be minor and adverse. Buildable planning zones utilize locations where resources are least visually impacted and design standards such as building heights, mass, roofing materials, and architectural character further reduce visual impacts. Because of the mitigation provided in the plan, the above projects would be expected to have minor, adverse impacts to visual quality and the natural lightscape. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to visual quality and the natural lightscapes.

Conclusion

In Alternative C future projects would proceed with the guidance of the comprehensive plan. The impacts to visual quality and the natural lightscapes from these projects and utilities associated with these projects are expected to be short and long-term, minor, and adverse and beneficial. Potential development footprint is less in Alternative C compared to Alternative B and impacts to visual resources are minimized through the use of the design standards which preserve historic views and visual quality. Building characteristics are described which augment the rustic character of the Tower Roosevelt area. Impacts to lightscapes are minimized through the use of the design standards which reference the Yellowstone Night Lighting Guidelines. While there is a net gain in development footprint, screening and compatible materials lessen impacts to the visual quality in the area. Potential removal or consolidation of development may enhance the visual quality. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor adverse and beneficial impacts to visual quality and the natural lightscapes.

Because there would be no major adverse impacts to visual quality and the night sky whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

VISITOR USE AND EXPERIENCE

Guiding Regulations and Policies

Section 1.4.3 of the *NPS Management Policies 2006* state that enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is

committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. Section 7 of the 2006 Management Policies states “National parks are among the most remarkable places in America for recreation, learning, and inspiration,” Section 8.2 of 2006 Management Policies states, “Management controls and conditions must be established for all park uses to ensure that park resources and values are preserved and protected for the future”. DO 42 states that “the NPS will seek to provide the highest level of accessibility that is reasonable, and not simply provide the minimum level that is required by law”.

Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts on visitor use and experience were derived from available information on visitor use of Yellowstone Park and the Tower-Roosevelt area, including statistics kept by the Visitor Services Office in Yellowstone.

The thresholds of change for the intensity of impacts on visitor use and experience are defined as follows:

Negligible: Visitors would not be affected or changes in visitor use or experience would be below the level of detection.

Minor: Changes in visitor use or experience would be detectable, although the changes would be localized. The visitor may experience a change that affects use in a localized or activity specific area.

Moderate: Changes in visitor use or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be affected by changed use patterns or activities in several areas.

Major: Changes in visitor use or experience would be readily apparent and have important long-term consequences. The visitor would be aware of the effects associated with the alternative and would likely be affected by changed use patterns across many areas.

Duration: Short-term effects would last during construction of a facility, typically up to three months. Long-term effects would be anything beyond the construction of a facility through the life of the facility, including maintenance activities.

Impacts of Alternative A to Visitor Use and Experience

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis.

Visitor use and experience is affected by the overall character of a place that is influenced by values such as visual appearance, orientation, congestion as well as specific activities provided in that location. Without an overall assessment of all of these resources and values Alternative A, could have minor adverse impacts on visitor use and experience due to a lack of coordination of projects or activities within the area or over a period of time in which change occurs. There would be uncertainty whether the changes affect the specific project or many projects within the area.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for minor impacts from projects are more likely. Evaluating these projects with separate environmental compliance

actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered. Without a comprehensive plan, there are no desired conditions or fundamental resources and values identified as goals to be met.

Cumulative Impacts

The number of visitors in the Tower-Roosevelt area has increased since 1995, partly due to the reintroduction of wolves and increased sightings of both black and grizzly bears. Although many wildlife watchers spend time in Lamar Valley, the Tower-Roosevelt area is the closest park development to Lamar and has been affected by increased visitation. Visitors accessing the Lamar Valley via Tower Roosevelt utilize services in the area such as restrooms, fuel and retail items. Since wildlife watching occurs from early in the morning until dark, visitors are traveling around and through the area at these times.

Road construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. This construction could add to the effects of this plan, and could also change the long-term travel experience on the Grand Loop Road in this area of the park, due to widening of the road corridor. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to visitors could be offset by long-term benefits. Because of these impacts, the above projects would be expected to have minor impacts to visitor use and experience. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to visitor use and experience.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. The impacts to visitor use and experience from these projects and utilities associated with these projects are expected to be short and long-term, minor, and adverse. Without the coordination and direction established in the comprehensive plan, Alternative A could have unanticipated consequences and associated impacts. Since the area is changing due to the reintroduction of wolves, future projects could have impacts that could affect visitor experience and use. Without the direction of the plan, future projects may or may not provide visitor use and experience that support consistent themes for the area. When combined with past, present, and foreseeable future actions, Alternative A could have short and long-term, minor adverse impacts to visitor use and experience.

Because there would be no major adverse impacts to visitor use and experience whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Visitor Use and Experience

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to visitor services in the Tower-Roosevelt area would provide visitors opportunities that maintain the fundamental resources and values and desired conditions of the Tower-Roosevelt area. Because the plan clearly identifies desired patterns of use, future change would be guided and resources identified as significant to visitor use and

experience would be preserved. Traditional functions would continue including outdoor chuck wagon cookouts, rustic lodging in cabins, horse and wagon rides from the Roosevelt Corrals location, scenic recreation, and visitor education. Changes in development would not affect visitor experience of wilderness and viewing wildlife in a natural setting.

New development along the Grand Loop Road at the Tower Junction location could affect the visitor experience in this location as facilities and parking expand to provide additional services. Increased development could have both adverse and beneficial long-term impacts. The Tower Junction location could have multiple visitor services rather than just a service station. The convenience of retail services at the Tower Junction location would be beneficial to visitors traveling within and through the location. The Tower Junction location could become busier with more traffic and could change the character and visitor experience of the Tower-Roosevelt area. Since the Tower Junction location is central to the Roosevelt Lodge and Tower Ranger Station locations, expansion in this location could impact visitor use and experience such as wildlife viewing or rustic character in other locations.

An improved visitor contact station in the Tower Junction or the Tower Ranger Station locations could benefit visitors requesting information. Visitors could have an experience that is less crowded in a larger facility and more information may be available in a larger space. Viewing of video materials could be less crowded for example.

New development along the entrance roads to the Roosevelt Lodge location could change the experience for visitors to the historic lodge and cabins as additional development could occur along the entrance route. Additional cabins would be visible instead of native vegetation and trees. Additional cabins provided in the Roosevelt Lodge location could increase traffic within the lodge complex, adding to traffic and parking congestion. However, the addition of new cabins gives the lodge operation greater flexibility to improve the experience for visitors staying there. In Alternative B, parking in front of the Roosevelt Lodge could be improved to reduce congestion and improve visitor safety. Unpaved parking would not exceed existing quantities. All parking would follow the design standards in the plan adhering to the historic layout of cabins and set backs from the entrance roads.

Use at The Yancey's Hole location would stay the same, however, facilities could be improved to better accommodate the visitor experience, resulting in an improved experience. Materials identified in the design standards would enhance the sustainability of the structures and allow for improved sanitation.

Reducing or removing the Tower Fall general store at the Tower Fall Trailhead location could adversely affect visitors that traditionally use the retail services and need to stop after descending Dunraven Pass. The location could change to increase emphasis to Tower Fall Trailhead scenery with a picnic area and restrooms. Improved parking at The Tower Fall Trailhead location could reduce congestion.

Visitor experience could be impacted negatively in the short term by construction. Traffic congestion, delays, and construction traffic, noise, and dust, could temporarily impact visitors. The construction would be limited to the site itself, no staging area would be required.

Visitor use and experience is affected by the overall character of a place that is influenced by values such as visual appearance, orientation, congestion as well as specific activities. An overall assessment of all of these resources and values, Alternative B would have moderate adverse and moderate beneficial impacts to visitor use and experience because of visitor services added that provide conveniently located retail or information while removing some services that have been popular in the past resulting in congestion.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to visitor use and experience would need to be less than the impacts described in this EA for this alternative as short and long term minor and adverse. Utilities in this planning zone are underground and trenching would follow the design standards for revegetation with native materials. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

The number of visitors in the Tower-Roosevelt area has increased since 1995, partly due to the reintroduction of wolves and increased sightings of both black and grizzly bears. Although many wildlife watchers spend time in Lamar Valley with longer duration, the Tower area is the closest park development to Lamar and has been affected by increased visitation. Visitation is likely to continue to increase in this area.

Road construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. This construction could add to effects to this plan, and could also change the long-term travel experience on the Grand Loop Road in this area of the park, due to widening of the road corridor. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to visitors could be offset by long-term benefits. Because of these impacts, the above projects would be expected to have minor, impacts to visitor use and experience. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to visitor use and experience.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to visitor use and experience from these projects and utilities associated with these projects are expected to be short and long-term, moderate, adverse and beneficial. Removing some of the visitor services which have become congested has both an adverse and beneficial impact at the Tower Fall Trailhead location as retail services are modified and the scenic experience is emphasized. Expanding visitor services in convenient locations also has both an adverse and beneficial impact at the Tower Junction location as more services are available but traffic congestion may occur. Visibility may impact some wildlife viewing or the remote feeling or rustic character as cabins are added to the Roosevelt Lodge location causing an adverse impact while other aspects of the visitor experience such as the enhanced parking in front of the Roosevelt Lodge provide benefit. Buildable planning zones locate development where resources are least impacted and development footprint restricts the amount of net gain. Design standards mitigate the character of the development to ensure that the visitor experience is optimized. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, moderate, adverse and beneficial impacts visitor use and experience.

Because there would be no major adverse impacts to visitor use and experience whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Visitor Use and Experience Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Changes to visitor services in the Tower-Roosevelt area would provide visitors opportunities that maintain the fundamental resources and values and desired conditions of the Tower-Roosevelt area. Like in Alternative B, Alternative C provides for future change that is guided by the plan, however, Alternative C provides for less change. In Alternative C traditional functions would continue, including outdoor chuck wagon cookouts, rustic lodging in cabins, horse and wagon rides from the Roosevelt Corrals location, scenic recreation, and visitor education. Changes in development would not affect visitors experiencing wilderness and viewing wildlife in a natural setting.

Existing services along the Grand Loop Road at the Tower Junction location; restrooms, and parking could be improved. The buildable planning zones identify areas where expansion could occur. The addition of a 2,000 square foot possible retail function and associated parking at this location is less than that provided in Alternative B and could provide limited expansion in services. However, the expansion of services might also attract more visitors. Cuts to the hillside behind the development would be less in Alternative C compared to Alternative B as less development footprint is accommodated. Design standards influence the character of the development providing for compatible, screened facilities that provide visitor services. The convenient location for these services could enhance the visitor experience. An improved visitor contact station in the Tower Junction or the Tower Ranger Station locations could benefit visitors requesting information.

Parking in front of the Roosevelt Lodge could be improved to reduce congestion and improve visitor safety. The visual experience would be enhanced from the Roosevelt Lodge porch where visitors wait for dinner and enjoy the historic views. The development footprint in Alternative C for the Roosevelt Lodge location is minimal, providing only for needed services. There is a separation between the services provided at the Tower Junction location and the entrance to Roosevelt Lodge. The visitor experience in the Lodge area remains similar to existing.

Use at the Yancey's Hole location would stay the same, however, facilities could be improved to better accommodate the visitor experience, resulting in an improved experience. Sustainable materials would be identified in the design standards for this location.

Reducing the Tower Fall general store at the Tower Fall Trailhead location could adversely affect visitors that traditionally use the retail services and need to stop after descending Dunraven Pass. The location could change to increase emphasis on the natural features associated with the Tower Fall's Trailhead; including a picnic area and restrooms. Congestion in the parking area could be reduced or improved with an enhanced parking plan.

Visitor experience could be impacted by construction, though this would be short-term in duration. Traffic congestion, delays, construction traffic, noise, and dust are all possible, temporarily. No staging area is necessary as construction would occur on site.

Visitor use and experience is affected by the overall character of a place that is influenced by values such as visual appearance, orientation, congestion as well as specific activities. An overall assessment of all of these resources and values, Alternative C would have minor adverse and minor beneficial impacts on visitor use and experience.

Cumulative Impacts

The number of visitors in the Tower-Roosevelt area has increased since 1995, partly due to the reintroduction of wolves and increased sightings of both black and grizzly bears. Although many wildlife

watchers spend time in Lamar Valley, the Tower area is the closest park development to Lamar and has been affected by increased visitation. Increased visitation is likely to continue in this area.

Road construction projects in the Tower-Roosevelt area and in the northeastern part of Yellowstone would continue to occur. This construction could add to effects to this plan, and would also change the long-term travel experience on the Grand Loop Road in this area of the park, due to widening of the road corridor. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to visitors could be offset by long-term benefits. Because of these impacts, the above projects would be expected to have minor, impacts to visitor use and experience. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to visitor use and experience.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. Buildable planning zones would identify where future change could occur that least impacts resources. Development footprint is less in Alternative C than in Alternative B resulting in less impact. The impacts to visitor use and experience from these projects and utilities associated with these projects are expected to be short and long term, minor, adverse and beneficial. Expansion in convenient locations provides visitor services while possibly increasing congestion. Removal of services can result in a changed emphasis for the associated visitor experience, such as removing retail functions from the Tower Trailhead location and emphasizing the natural scenic experience. The comprehensive plan ensures that traditional visitor experiences significant in the Tower Roosevelt area continue to occur. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, minor, adverse impacts to visitor use and experience.

Because there would be no major adverse impacts to visitor use and experience whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

PARK OPERATIONS

Guiding Regulations and Policies

Management Policies do not contain a specific chapter on park operations; however, virtually every action or proposal that is evaluated in this NEPA process has either a direct or indirect effect on park operations. There are also a number of director's orders that pertain to park operations as well.

Methodology and Intensity Thresholds

NPS Management Policies 2006 states: The National Park Service will provide visitor and administrative facilities that are necessary, appropriate, and consistent with the conservation of park resources and values. Facilities will be harmonious with park resources, compatible with natural processes, esthetically pleasing, function, and energy and water efficient, cost effective, universally designed, and as welcoming as possible to all segments of the population. NPS facilities and operation will demonstrate environmental

leadership by incorporating sustainable practices to the maximum extent practicable in planning, design, siting, construction, and maintenance.

Negligible: Impacts would not occur or would not be detectable.

Minor: Impacts would be slight, short-term and localized, but would not have a measurable effect to park operations.

Moderate: Impacts would be measurable, potentially long-term, and would measurably improve or degrade park operations.

Major: Impacts would be long-term, and significantly improve or degrade park operations.

Duration: Short-term effects would be less than one year. Long-term effects would continue beyond one year.

Impacts of Alternative A to Park Operations

Impact Analysis

In Alternative A, no comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Alternative A assumes that existing conditions would likely remain the same; however projects could be proposed in the foreseeable future. Yellowstone National park staff would evaluate project proposals for visitor services, facilities and utilities in the Tower-Roosevelt area on a case-by-case basis using separate environmental compliance analysis. Without the comprehensive plan there would be no direction or coordination between future changes possibly resulting in inefficiencies or unintended consequences.

Park operations affect all aspects of the Tower Roosevelt area; supporting visitor services and protecting park resources. Without the benefit of a comprehensive plan, changes in development may occur that do not consider the cumulative impact on park operations, such as changes in utility systems, water supplies, waste water treatment plants, emergency response or structural fire response.

The TRCP/EA assumes that without adoption of a comprehensive plan on how, where, and what kind of development and redevelopment can occur within the Tower-Roosevelt areas, the possibility for moderate impacts from projects are more likely. Evaluating these projects with separate environmental compliance actions could lead to unanticipated cumulative impacts and fundamental resources and values may be incrementally altered.

Cumulative Impacts

Road construction projects in the Tower-Roosevelt and the northeastern part of Yellowstone would continue to occur, including the Lamar River Bridge project, scheduled for 2010. Construction may affect area operations. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded the project could have a generally beneficial impact on operations with improved traffic flow and road surface, but could have a minor increased maintenance need related to additional vault toilets. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to park operations could be offset by long-term benefits. Drought may affect potable water availability and ultimately affect area operations. Coordination of potential change is uncertain without the comprehensive plan. Without design standards development may impact resources in ways that are unintended as building heights, materials, massing or architectural character are not guided. Impacts to park maintenance may increase as materials and technology are not sustainable or durable. Fire-resistant

materials may not be incorporated in future changes resulting in more fire hazards and operational expense. Utility impacts may not be minimized and disturbances greater as a result. Maintenance operations may increase as utilities are not consolidated or parking areas expand in ways that plowing is more difficult. Because of these impacts, the above projects are expected to have minor, impacts to park operations. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to park operations.

Conclusion

In Alternative A, future projects are likely to proceed without the guidance of a comprehensive plan. Future projects would go through separate environmental analysis process. In the foreseeable future Alternative A is expected to have long-term minor adverse and minor beneficial impacts to park operations such as changes in parking configuration that may reduce congestion but increase maintenance workloads. Without the comprehensive planning components, development footprint could be less efficient, resulting in maintenance expenses. Utilities could be expanded in ways that are less sustainable resulting in higher costs for installation and repair. Energy efficiency, snow loading considerations and other design standards would not be applied resulting in higher costs for operations. Buildings may not be consolidated resulting in more distance for patrol units. Fire protection may increase if materials are not fire resistant. When combined with past, present, and foreseeable future actions, Alternative A would have long-term minor adverse and minor beneficial impacts to park operations.

Because there would be no major adverse impacts to park operations whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative B to Park Operations

Impact Analysis

In Alternative B, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. Increased development in the Tower-Roosevelt area, particularly at the Tower Junction location, could create additional demand on existing utility systems (water, sewer, electricity, solid waste collection), and possibly the need for improved or expanded utility systems. Buildable planning zones have identified where resources are least impacted by expansion. Development footprint is increased in the Tower Junction location by a maximum of 9,000 square feet for net gain in buildings and 35,400 square feet net gain in paved parking in this location. These changes could result in an adverse impact to park operations such as an increased need for building and parking area maintenance. Additional staff could be required to provide visitor services such as interpretive information or law enforcement. Maintaining these systems would impact area maintenance staff. This alternative anticipates utility systems to be upgraded and expanded or that alternative designs could be considered. Use of sustainable technologies where feasible would reduce demand on resources. Design standards would consolidate development footprint and reduce maintenance operations.

Additional buildings and parking areas would create a need for more maintenance activities such as custodial services and plowing. Improvement in facilities for support operations such as additional storage, office space and housing, could result in a beneficial impact providing greater efficiency.

Removing or reducing the Tower Fall General Store at the Tower Fall Trailhead location could have a beneficial impact on operations. The load to sewer systems could be reduced.

Construction activities could have additional impacts on area operations in the short-term with movement of heavy equipment, and wear and tear on roads. Updates to facilities and infrastructure are likely to have both a moderate adverse and moderate beneficial impact to park operations as updated facilities are more complex to operate but may be more efficient.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to park operations would need to be less than or equal to the impacts described in this EA for this alternative as short and long term minor to moderate adverse and minor beneficial. Utilities are underground in this planning zone and impacts of trenching would be minimized by utilizing native vegetation and restoring natural contours. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional environmental compliance would be required.

Cumulative Impacts

Road construction projects in the Tower-Roosevelt and the northeastern part of Yellowstone would continue to occur, including the Lamar River Bridge project, scheduled for 2010. Construction may affect area operations. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded the project could have a generally beneficial impact on operations with improved traffic flow and road surface, but could have a minor increased maintenance need related to additional vault toilets. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to park operations could be offset by long-term benefits. Drought may affect potable water availability and ultimately affect area operations. Improved utility systems may be more efficient resulting in less consumptive use. Because of these impacts, the above projects are expected to have minor, impacts to park operations. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to park operations.

Conclusion

In Alternative B, future projects would proceed with the guidance of the comprehensive plan. The impacts to park operations from these projects and utilities associated with these projects are expected to be short and long-term, minor to moderate adverse and minor beneficial. As development footprint expands, utilities may need to be expanded to accommodate additional electrical, water, and sewer loads. Buildable planning zones identify where expansion will least impact resources. Updated systems may be more efficient and sustainable, mitigating some of the potential impacts. Benefits to operations from expanded storage spaces, offices or service buildings may improve service and operations. Consolidated or reduced parking areas such as at the Tower Fall Trailhead location may require less maintenance while expanded parking in other locations may require additional maintenance such as at the Tower Junction location. Improving visitor facilities at Yancey's Hole may improve operational efficiency in this location as sanitation is improved and surfaces are easier to clean. Improved staff housing could enhance operational efficiency as employees have a shorter response time for fire and law enforcement activities. When combined with past, present, and foreseeable future actions, Alternative B could have short and long-term, minor to moderate adverse and minor beneficial impacts to park.

Because there would be no major adverse impacts to park operations whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would

not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Impacts of Alternative C to Park Operations

Impact Analysis

In Alternative C, a comprehensive plan would guide the establishment of desired conditions, acceptable limits of change, and planning components for future development. In Alternative C less development footprint is provided than in Alternative B. Buildable planning zones identify where development can occur with the least impact to resources. Increased development would be limited and utility systems may remain adequate at the Tower Junction and Tower Fall Trailhead locations. However, additional demand on existing utility systems (water, sewer, electricity, solid waste collection), and the need for improved or new utility systems is possible. This alternative could accommodate utility systems to be upgraded and expanded within the natural planning zone. Underground utilities would be guided by the design standards for each location, such as restoring trenched areas with native vegetation and natural contours.

Additional buildings and parking areas would create a need for more maintenance activities such as custodial services and plowing. Improvement in facilities for support operations such as additional storage, office space and housing, would result in a beneficial impact providing greater efficiency. These expansions occur within a smaller development footprint in Alternative C. The expansion in the Tower Junction location is a maximum of 2,000 square feet of net gain in buildings and 15,000 net gain in paved parking for this location. These expansions could result in increased plowing or building maintenance. Design standards would consolidate both the buildings and parking mitigating the impact. Sustainable materials and roofing design would reduce the maintenance requirements. Reducing the Tower Fall General Store at the Tower Fall Trailhead location could have a beneficial impact on operations. The load to sewer systems could be reduced. Yancey's Hole facilities would be minimally expanded which would have a minimal impact on park operations. Expanded housing and support facilities could improve response times for maintenance, fire or law enforcement operations having a beneficial impact.

Construction activities would have additional impacts on area operations in the short-term with additional personnel in the area, movement of heavy equipment, and wear and tear on roads. Updates to facilities and infrastructure are likely to have both a minor adverse and minor beneficial impact to park operations.

For implementation of possible projects in the TRCP planning zones, especially utilities in the *Natural Zone*, impacts to park operations would need to be less than or equal to the impacts described in this EA for this alternative as short and long term minor and adverse. Underground utilities would follow design standards for installation to mitigate resource and operational impacts. Compliance for future projects proposed outside the planning boundary are not included in this EA and additional surveys would be required.

Cumulative Impacts

Road construction projects in the Tower-Roosevelt and the northeastern part of Yellowstone would continue to occur, including the Lamar River Bridge project, scheduled for 2010. Construction may affect area operations. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded the project could have a generally beneficial impact on operations with improved traffic flow and road surface, but could have a minor increased maintenance need related to additional vault toilets. The Canyon Junction to Tower Junction Road Improvement EA (2001) concluded that short-term inconveniences to park operations could be offset by long-term benefits. Drought may affect potable water availability and ultimately affect area operations. Because of these impacts, the above projects are expected to have

minor, impacts to park operations. Cumulative impacts from these past, present, and future actions could have long-term minor impacts to park operations. The impacts resulting from these past, present, and future actions would result in long-term minor impacts to park operations.

Conclusion

In Alternative C, future projects would proceed with the guidance of the comprehensive plan. The impacts to park operations from these projects and utilities associated with these projects are expected to be short and long term, minor adverse and minor beneficial. When combined with past, present, and foreseeable future actions, Alternative C could have short and long-term, minor, adverse impacts to park operations. Alternative C provides for a limited expansion of development footprint and less impacts to park operations including building and parking maintenance and utility expansion. The largest change in development footprint is in the Tower Junction location. These expansions could be accomplished with minor expansion to utility systems and could consolidate functions in the location. Improvement of the Roosevelt Lodge parking area could improve park operations as congestion could be decreased. Reduction of some facilities such as those at the Tower Fall Trailhead location could reduce park operations in a beneficial manner. Providing support facilities such as housing and an emergency service building near operational locations could reduce response times for many operational components such as fire, medical and law enforcement activities. Design standards provide mitigation for operational impacts such as sustainable building materials and revegetation of utility trenches.

Because there would be no major adverse impacts to visitor use and experience whose conservation is (1) necessary to fulfill specific purposes identified in Yellowstone's establishing legislation; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in other park or NPS planning documents, there would be no impairment to these resources. Implementation of this alternative would not result in any unacceptable impacts and is consistent with § 1.4.7.1 of NPS Management Policies 2006.

Chapter 5: CONSULTATION & COORDINATION

SCOPING

Scoping is an early and open process used to determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. External (public) scoping was conducted to inform various agencies and the public about the proposal to prepare a comprehensive plan for the Tower-Roosevelt area. Yellowstone National Park conducted both internal scoping with NPS staff and external scoping with the public, as well as interested and affected organizations and agencies. Public scoping for the Tower-Roosevelt Comprehensive Plan began on May 26, 2006, with a news release and mailing to previously identified interested parties asking for help in identifying issues and concerns. Scoping was also done through the NPS Planning, Environment, and Public Comment (PEPC) website. Scoping ended on June 30, 2006. Six comments were received through PEPC. One comment was received through the U.S. mail from the Comanche Tribe requesting project progress updates.

Internal scoping was conducted by an interdisciplinary team in Yellowstone National Park. Interdisciplinary team members met regularly throughout the course of this planning process to discuss the purpose and need for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigation measures. The team also gathered background information and conducted field visits and site surveys.

LIST OF AGENCIES AND ORGANIZATIONS

Agencies and organizations contacted for information or that assisted with identifying important issues, developing alternatives, or analyzing impacts; or that will review and comment upon this document include:

Federal Highways Administration

Wyoming State Historic Preservation Office

U. S. Fish and Wildlife Service

Yellowstone's 26 Associated Native American Tribes

ENVIRONMENTAL ASSESSMENT REVIEW

The Environmental Assessment will be released for public review in June 8, 2009. To inform the public of the availability of the Environmental Assessment/Assessment of Effect, the National Park Service published and distributed a letter and press release to various agencies, tribes, and members of the public on the park's mailing list, and developed a press release for publication in local newspapers. Copies of the Environmental Assessment/Assessment of Effect will be provided to interested individuals, upon request. Copies of the document will also be available for review on the Internet at <http://parkplanning.nps.gov/yell>.

The public is encouraged to submit their written comments to the National Park Service at the address provided at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The National Park Service will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the Environmental Assessment, as needed.

LIST OF PREPARERS

Authors and Preparers

Eleanor Clark, Chief of Comprehensive Planning and Design

Lynn Chan, Landscape Architect

Leigh Anne Dunworth, Outdoor Recreation Planner

Zehra Osman, Landscape Architect

Dale Reinhart, Landscape Architect

Interdisciplinary Team, Yellowstone National Park

Lynn Chan, Landscape Architect

Tom Cunningham, Tower Maintenance Supervisor

Colette Daigle-Berg, Tower Subdistrict Ranger

Herb Dawson, Historic Architect

Leigh Anne Dunworth, Outdoor Recreation Planner

Erik Hendrickson, General Engineer

Ann Johnson, Archeologist

Ray Lawless, North District Maintenance Supervisor

Kerry Murphy, Wildlife Biologist

Zehra Osman, Landscape Architect

Ann Rodman, Supervisory GIS Specialist, Spatial Analysis Center

Brian Suderman, North District Interpretive Ranger

Nancy Ward, Assistant Chief, Maintenance

Contributors and Consultants, Yellowstone National Park

Heidi Anderson, Botanist

Mike Angermeier, Landscape Architect

Jeff Arnold, Aquatic Ecologist

Sarah Bone, Seasonal GIS Specialist

Eleanor Clark, Chief, Comprehensive Planning and Design Office

Carolyn Duckworth, Publications Program Manager
Mary Ann Franke, Technical Editor
Deb Guernsey, Biological Technician, Wolf Project
Carrie Guiles, GIS Specialist
Hank Heasler, Supervisory Geologist
Mary Hektner, Resource Specialist, Wetlands and Air Quality
Cheryl Jaworowski, Geologist
Judy Jennings, Chief, Concessions Management
Todd Koel, Supervisory Fisheries Biologist
Chris Lehnertz, Deputy Superintendent
Suzanne Lewis, Superintendent
Doug Madsen, Outdoor Recreation Planner
Linda Mazzu, Supervisory Outdoor Recreation Planner
Glenn Plumb, Supervisory Wildlife Biologist
Vicki Regula, Botanist
Dale Reinhart, Landscape Architect
Dan Reinhart, Resource Management Coordinator
Michele Reinhart, Planning Assistant
Dan Rhodes, Landscape Architect
Doug Smith, Wildlife Biologist, Wolf Project
Lycurgo Vidalakis, GIS Planning Specialist
Jennifer Whipple, Botanist
Yellowstone Center for Resources, Spatial Analysis Center Staff

Contributors and Consultants - Concessioners

Delaware North

Bill Schumann, Manager, Tower Fall General Store

Xanterra Parks and Resorts

Rosanna Griffin
Todd Scott
Tom Venable

Yellowstone Park Service Stations

Hal Broadhead
Bill McSpadden

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