



**National Park Service**  
**U.S. Department of the Interior**  
**Yellowstone National Park**

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**West Entrance Project**  
**Environmental Assessment**  
**September, 2003**





#### NOTE TO REVIEWERS AND RESPONDENTS

If you wish to comment on this environmental assessment, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Comments are due October 7, 2003, and should be addressed to:

Superintendent  
Attn: Planning and Compliance  
West Entrance Project  
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## **INTRODUCTION**

On March 1, 1872, the U.S. Congress took a bold step into conservation history by creating the world's first national park, Yellowstone. Congress stipulated that the park was "dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people," and "for the preservation from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders... and their retention in their natural condition" (U.S.C. 16, Section 22; 17 Stat. 32). These words, some of which are engraved on the park's historic Roosevelt Arch, provide inspiration to conservationists and park managers worldwide.

Indeed, Yellowstone's wonders are famous, and worthy of protection. The park contains the world's greatest collection of geothermal features, including more geysers than the rest of the world combined. An outstanding mountain wildland with clean water and air, Yellowstone protects grizzly bears, wolves, the greatest herd of elk in the country, and our only continuously free-ranging herd of bison. Complementing Yellowstone's wildness is its history; the National Park Service today protects many historic and archaeological sites that reflect the park's unique heritage. Park managers today strive to protect these resources for the enjoyment, education, and inspiration of this and future generations.

Congress charged the National Park Service (NPS) with its now-famous dual mission: "to conserve the scenery and the natural and historic objects and the wild life 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." Regulating the traffic entering the park is crucial to protecting park resources while also enabling visitors to enjoy their time in Yellowstone. Entrance stations play an important role in such regulation and protection. The park has five entrance stations. Four of the entrances function adequately, but the West Entrance has many problems that compromise the ability of the National Park Service to adhere to its mission.

## **PURPOSE AND NEED**

The National Park Service is proposing to reconstruct the West Entrance station. The project will include two aspects: 1) a new entrance station, with an associated administration building, both probably built further into the park to provide longer queuing distance; and 2) some form of visitor contact station.

The existing West Entrance station was built around 1969, and has a small office, three kiosks, and a 2,700 square foot canopy over the entire facility. It is pictured on the front cover.

The project is needed because the existing station is deficient in several ways; the first of these are its structural problems. Traffic lanes are too narrow for some modern vehicles, so narrow that large RVs and buses hit or scrape the kiosks themselves 10-12 times daily and/or are forced to go around the entrance. Further, the overhead height of the canopy is



too short for the tallest vehicles. To accommodate these wide or tall vehicles, current staff must halt outbound (westbound) traffic and allow the vehicle to enter the park via that lane. Sometimes these large vehicles are surrounded by waiting vehicles, making it necessary for several rangers to free up the necessary space for the vehicle to access the outbound lane. Clearly, safety violations are inherent in this improvised system. These situations further back up entering traffic, delaying and frustrating park visitors and staff alike. A final structural problem is that exhaust fumes from vehicles, especially snowmobiles, collect under the canopy. Carbon monoxide emissions from snowmobiles approach Clean Air Act Class I limits for national parks at times in the West Entrance area.

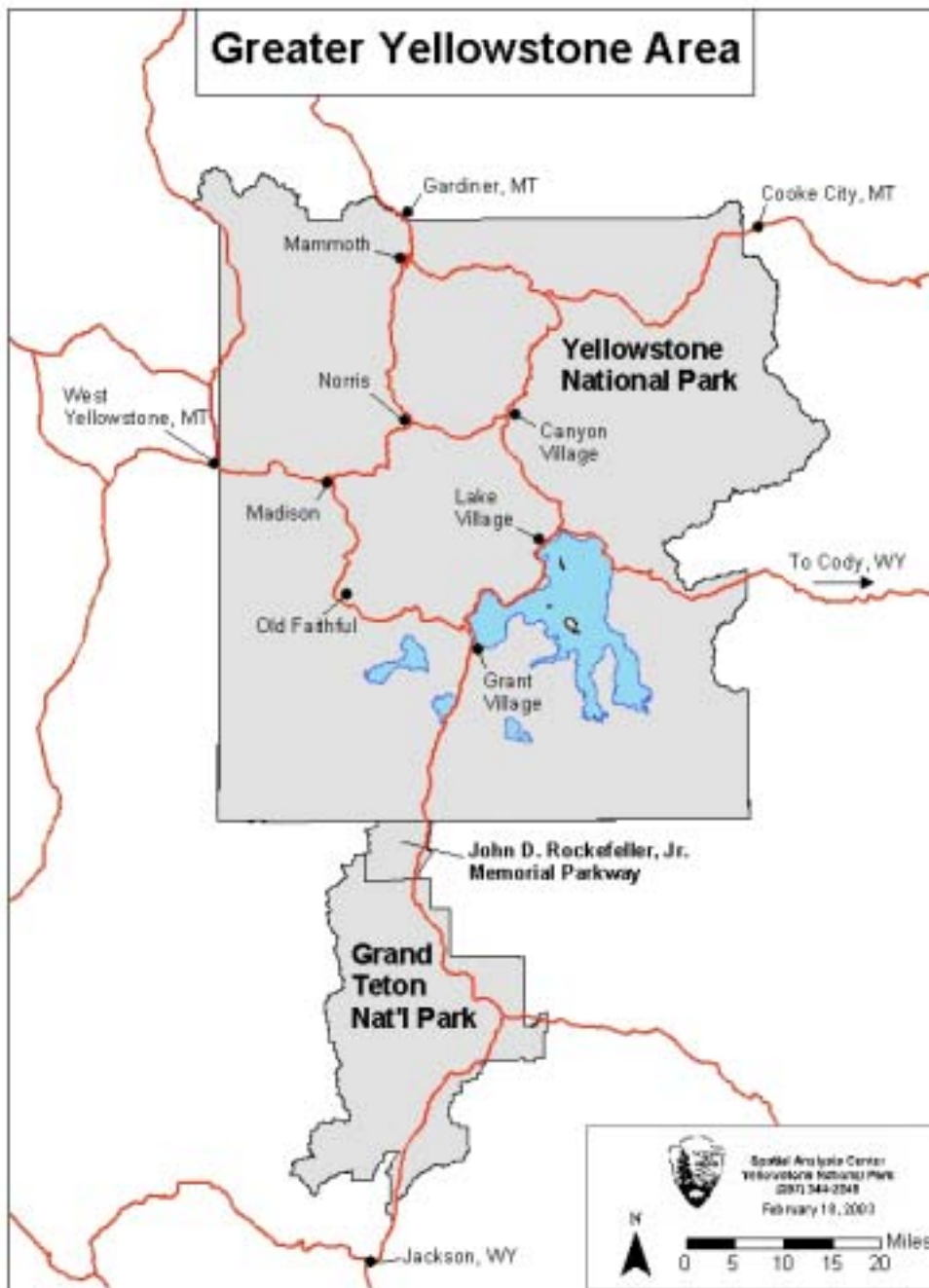
The entrance also has geographic problems. Its proximity to the nearby town of West Yellowstone means that entering vehicles sometimes back up into the town itself, primarily when an oversize vehicle has been caught in traffic or has struck the entrance. Such backups cause unnecessary congestion both on the approach lanes in the park and in West Yellowstone. Park staff attempted to remedy this problem by converting an unused entrance lane (previously unused because it has no kiosk, but only a 30-inch-wide traffic island for employees to stand on) to an express lane for vehicles already possessing entrance passes. While this solution has helped, the express lane's approach has inadequate distance for effective signing, and re-entering visitors often lack the necessary space and reaction time to make the lane switches necessary to use it (see Appendix 2 for a complete analysis of the traffic situation at the entrance). Therefore, the express lane is often underused.

Serving visitors is difficult with the current entrance. The West Entrance is Yellowstone's busiest, admitting about 40% of Yellowstone's 3 million visitors. Yet, there is no information desk or adequate space at which visitors may obtain needed backcountry or fishing permits. Due to the large crowds and lines of vehicles, rangers can do no more than collect fees from entering visitors and give them printed warnings and park information. Most visitors spend less than 60 seconds with a ranger, which is not enough time for him or her to warn them about the park's many unusual and inherent dangers. Entrance rangers have attempted to deal with this problem by moving a trailer (Madison Junction's winter warming hut) to a site adjacent to the West Entrance (in the summer). While this has helped the situation (particularly in disseminating permits), the warming hut is too small and structurally insufficient for more than brief interactions with visitors. Also, in the early 1990s the National Park Service committed to help staff the Public Lands Desk at the Chamber of Commerce Building in West Yellowstone. While this building certainly assists some visitors, many visitors miss it entirely. Further, the Chamber building cannot serve the large number of visitors entering the West Entrance without expansion. Visitors who do not backtrack to the Chamber are left with little choice but to proceed on fourteen miles to the Madison Information Station, which is usually closed before Memorial Day and after Columbus Day. In summary, the lack of an effective contact station means that the NPS misses important interpretive opportunities for visitors about to drive the West Entrance Road's 14 miles of wildlife-rich habitat and to experience the park's inherent dangers.

The West Entrance presents several health and safety problems for entrance rangers as well. Storage space is unheated, infested with mice, and lacking proper storage methods.

Employees staffing the express lane are forced to stand on a narrow traffic island between two lanes of traffic, endangering their safety and health. The kiosks were not ergonomically designed, so employees must perform repetitive tasks in ways that may contribute to injury or unsafe conditions. Employees exiting the small office building step out directly into the express lane. No crosswalk is marked for employees to safely walk to the kiosks. As noted above, oversize vehicles present additional safety problems, as do the fumes that collect under the canopy.

Lastly, the current entrance completely lacks adequate office space for its staff. As the busiest entrance, the West Entrance therefore brings in the most revenue. Entrance rangers have insufficient and insecure space in which to balance their cash drawers at the close of their shift and to file necessary reports, no meeting rooms or private office space, and no break room. More extensive office space is desperately needed.





# West Entrance Area





## Existing Conditions

The existing entrance station has three kiosks and lanes plus a fourth lane without a kiosk (the express lane), a small office building, and a large canopy over the entire entrance. The entrance is Yellowstone's busiest, admitting 40% of Yellowstone's visitors, or 1.2 million annually. On typical summer days 3,000-4,000 vehicles enter through this gate. There is a pronounced rush of traffic entering in the morning and early afternoon; at these times, all three entrance kiosks are open as well as the express lane, if staffing levels permit.

The geography of the entrance station is such that rangers greet entering visitors through south-facing windows; additionally, most storms approach the area from the south or southwest. The canopy helps shield visitors and rangers from the weather and the strong summer sun. However, the sound of loud vehicles is somewhat magnified by the canopy.

The West Entrance is also the busiest entrance in winter, admitting almost 50% of the park's visitors. As many as 1,400 snowmobiles have entered through this gate on the busiest winter days, commonly on President's Day weekend in February and Christmas week. Concentrations of particulates and carbon monoxide are high at times, closely approaching Clean Air Act's Class 1 airshed limits at this entrance. The State of Montana monitors these two pollutants and visibility at the entrance. Concentrations of volatile organic compounds such as toluene and benzene are also very high at times, though the federal government does not regulate these pollutants. However, the Occupational Safety and Health Administration is concerned about employee exposure to them, and the entrance staff most exposed to emissions have respirators (gas masks) to wear on the busiest days.

The Chamber of Commerce in West Yellowstone sits at the junction of Canyon Street and Yellowstone Avenue. This is a high-visibility location that almost all visitors headed to Yellowstone must pass. Between the Chamber and the park boundary is a medium-sized parking lot with 72 striped parking sites and Dunbar Park, a small city park. The Chamber building contains offices for chamber staff, a small meeting/storage room, a Chamber of Commerce information desk, and a Public Lands Information Desk. Visitors may obtain information about Yellowstone and Grand Teton National Parks at this desk, as well as the Gallatin and Targhee National Forests. Although the Gallatin National Forest has assisted in staffing the public lands desk in the past, today the National Park Service exclusively staffs it. In summer 2002, 93,000 visitors stopped at the Chamber seeking information from either desk, with an additional 26,000 entering the Chamber in winter.

## History

In 1915, public demand led the U.S. Army (administering Yellowstone at the time) to forever alter the appearance of tourism in Yellowstone with the admission of the first automobiles into the park. This form of transportation presented new challenges and risks to the park, so the Army determined that automobiles would need careful regulation. To accomplish that, park administrators constructed the first "auto checking station" at West Yellowstone in 1915. The building was 14 feet square with a tarred paper and gravel roof,

costing a total of \$200 (Whittlesey 2002; also, "Report on Construction of Buildings Prior to January 1, 1930," in Box D-66, Yellowstone National Park Archives (hereafter YNPA)).

The auto checking station became the first of many different buildings to serve as an entrance station at West Yellowstone. The National Park Service took over park administration in 1918 and replaced the West Entrance checking station in 1924 with "a new and very attractive gateway and checking station[,]... built by the rangers" (Superintendent's Annual Report for 1924, p. 9; illustrated below). The building consisted of a small central building with a roof extending out both sides enough to provide cover for both entering and departing automobiles. Eight years later a contractor again rebuilt the station, "making [it] one of our best ranger stations" (Superintendent's Annual Report for 1932, p. 21, YNPA). This third entrance station closely resembled the previous station, except that it had a kiosk added on the south side to allow two lines of traffic to enter simultaneously, both being served by a ranger.



**West Entrance, 1932 (the third entrance on this site).**

The third entrance station lasted into the 1950s. In 1955 three movable permit booths were installed with traffic lanes, and an information station was built just inside (east) of the booths (and situated just east of today's entrance station). Rangers staffed the information booth, which was also equipped with 11 displays about park rules and natural history, a topographic relief map of the park, a pay phone, and a desk staffed by the Yellowstone Park Company ("Museum Plans" file, Box D-66; and 1955 Superintendent's Annual Report, both at YNPA). Although the information station and booths were a pilot program, they were retained at the West Gate into the late 1960s. Staff experimented with having the information station inside (east) or outside (west) of the movable permit booths, and found that inside them worked better for visitors.

In the early 1960s, park staff felt that an NPS contact station in West Yellowstone would be desirable. The regional director, however, felt otherwise, worrying that town merchants would resent the NPS staff sending visitors and their business into the park, away from the town. The regional director also felt that the NPS should not be expending government



funds outside the park when it did not have adequate operating funds for the park itself. For these reasons, the town contact station was never built, although the contact station at the entrance was evidently kept open until the current entrance station was built (Superintendent to Regional Director, April 5, 1963, and Acting Regional Director to Superintendent, April 19, 1963, both in file "D18 & 7 Jan. 1963-Jan. 1964," Box D-245, YNPA).

A few years later, planning began for a new entrance station under the Mission 66 Program, a nationwide NPS development program of the 1950s and 60s. Architect William C. Muchow, one of the leading modernist architects in Denver at the time and associate of Eero Saarinen, designed the building, finishing its plans in 1968. The National Park Service built the new station in 1968 or 1969 (the actual date is unknown), with three small kiosks and a larger office building to the side all covered by a detached and imposing canopy (West Entrance "As Constructed Drawings," Project Yel-S-238, Microfiche # 6206C, Maintenance Files, YNP, WY). The Service modified the building in 1974 or 1975 to increase fresh air flow into the booths ("West Entrance Kiosk Ventilation," Microfiche #60114, Maintenance Files, YNP, WY). Destruction of the former entrance station, kiosks, and contact station accompanied construction of the large A-frame modernist structure still in use today, and the site was revegetated with lodgepole pine (visible as the stippled pattern just east of the current entrance station on the aerial view above).

Discussions about a contact station renewed in the early 1990s, with park staff and representatives from the West Yellowstone Chamber of Commerce promoting the construction of a multi-agency (i.e. many federal and state agencies) Visitor Information Center (Box A-392, file "1360—Meetings", YNPA). Participants in those discussions envisioned, and had plans drawn for, a building with displays, an auditorium, a book sales area, and a large visitor information desk. Concerns arose about the size of the book sales area and the inability of the NPS to meet the financial obligations, so such a building was never built. However, the Chamber was able to construct the smaller building present at the intersection of Yellowstone Avenue and Canyon Street in 1994. Some parking is adjacent to the building on the east and south sides (the building sits very close to both Yellowstone Avenue on the north and Canyon Street on the west).

## **Scoping**

Scoping to identify issues, concerns, and alternatives about the proposed entrance station and contact station began in September 2002 with a mailing to previously identified interested parties asking for help in identifying such issues and concerns. The scoping letter was also posted on the Internet and a press release issued on September 18, 2002. Scoping ended November 15, 2002 with eleven responses. Six members of the public provided comments, along with the U.S. Army Corps of Engineers, three divisions of the Wyoming State Government, and Park County, Wyoming. Comments generally supported development of a new entrance station, although two individuals recommended keeping the existing entrance or redeveloping on the existing site. Commentators also generally supported the construction of an environmentally sustainable building (for example, one that would take advantage of prevailing winds).

## Impact Topics

Comments received during internal scoping from specialists in the National Park Service and during public scoping with interested members of the public and other federal and state agencies both identified issues and concerns affecting the proposed action. Impact topics are the resources of concern that could be affected by the range of alternatives. Specific impact topics were developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics were identified on the basis of federal laws, regulations, orders, and National Park Service *Management Policies* (2001): geology and soils, vegetation, wildlife, threatened and endangered species, air quality, visual quality, lightscapes; soundscapes; historic resources; socioeconomic resources, and visitor use and experience.

## Impact Topics Dismissed from Further Consideration

### Floodplains

Executive Order 11988, *Floodplain Management*, requires all federal agencies to avoid construction within the 100-year floodplain unless no other practical alternative exists. Because the West Entrance area is not within the 100-year floodplain, this topic was dismissed from further consideration. A Statement of Findings for floodplains will not be prepared.

### Water Resources and Water Quality

The sandy, rhyolitic, dry soils in the West Entrance area absorb most rainfall and snowmelt, thereby allowing few streams to develop. No permanent or seasonal streams of any kind are found in the project site, and few, if any drainages occur. The Madison River is the closest water body, about a mile northeast of the site.

If Alternatives 2 or 3 are chosen, standard erosion control devices would be used to prevent runoff into the Madison River or its tributaries. No fill would be placed in wetlands. Ground water at the West Entrance is expected to meet existing regulatory guidelines, and no discharge of fill would occur into any waters in the area. Runoff ponds would be constructed on the south side of the entrance plaza to collect rainwater runoff for slow dispersal and filtering into the ground. Therefore, no alternatives would have more than negligible effects, no alternatives would result in impairment of water resources and water quality, and this topic was dismissed from further consideration.

### Wetlands and other Waters of the United States

Aerial and ground surveys revealed that there are no wetlands in the area(s) proposed for development (Whipple 2003). Therefore, this topic was dismissed from further consideration.

### Rare Plants

A rare plant survey was conducted at all sites potentially disturbed by the various proposals contained within this document, using the Montana Natural Heritage Program's list of plant species of special concern (May 1995). The results of the survey indicate that there

are no rare plants in the area(s) proposed for development (Whipple 2003), and therefore, this topic was dismissed.

#### Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effect of their actions on farmland soils classified by the U.S. Department of Agriculture's Conservation Service (NRCS) as prime or unique. Prime farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to the NRCS, none of the soils in the project area are classified as prime and unique farmlands. Therefore, this topic was dismissed as an impact topic in this document.

#### 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 the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. None of the alternatives would have health or environmental effects on minorities or low-income populations or communities as defined in the Council on Environmental Quality's "Environmental Justice: Guidance Under the National Environmental Policy Act" (CEQ 1998). Therefore, environmental justice was dismissed as an impact topic.

#### Indian Trust Resources

Indian trust assets are owned by Native Americans but held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order No. 3206, "American Indian Tribal Rites, Federal – Tribal Trust Responsibilities, and the Endangered Species Act," and Secretarial Order No. 3175, "Departmental Responsibilities for Indian Trust Resources." The Bureau of Indian Affairs (BIA) and the National Park Service have formed a joint agency, the National Interagency Fire Center (<http://www.fire.nps.gov/bia>), to handle wildfire management on Indian trust lands based on fire management plans approved by the Indian landowner. According to NPS personnel, Indian trust assets do not occur within Yellowstone National Park.

#### Archaeological Resources

A survey of the project area in 2002 found only two archaeological sites, both gravel pits from the historic era. One site (site 24YE125) was used to dispose of logs, sawn lumber, and asphalt. Neither site was determined to be eligible for listing to the National Register of Historic Places (Johnson, 2003). No prehistoric sites were found within the project area.

Construction zones would be kept to the minimum necessary through fencing around the zones. No construction activities would be allowed outside of such zones, and construction contracts will specify this, along with penalties for violation thereof. If construction activities discover previously unknown archaeological resources, all work immediately on or adjacent to the site would stop until the park archaeologist could identify and document

the resources, and until the Montana SHPO and NPS could develop an appropriate mitigation strategy.

Because no archaeological resources would be impacted by this project, and because monitoring for such resources would be performed as construction proceeds, this topic was dismissed from further consideration.

### Cultural Landscapes

According to the National Park Service's *Cultural Resource Management Guideline* (NPS 1997:8), cultural landscapes are "settings we have created in the natural world. They reveal fundamental ties between people and the land—ties based on our need to grow food, give form to our settlements, meet requirements for recreation, and find suitable places to bury our dead. Landscapes are intertwined patterns of things both natural and constructed: plants and fences, watercourses and buildings. They range from formal gardens to cattle ranches, from cemeteries and pilgrimage routes to village squares. They are special places: expressions of human manipulation and adaptation of the land." Cultural landscapes provide a visual chronicle of an area's human history. Human developments may occur spontaneously, such as for a vernacular landscape, or formally, such as for a historic designed landscape.

Within the area of potential effect is one identified cultural landscape, the West Entrance Road, which was built as part of the designed, planned road system. Although the road's configuration has changed many times over the years, variations in road alignment adhere to the original purpose or function of the road. The entrance roads connect to the Grand Loop Road, which leads to the most important scenic features and wonders of Yellowstone.

The NPS will ensure that any proposed development does not adversely affect the qualities that make the area a cultural landscape. An entrance station has always been a part of this landscape; reconstruction of the West Entrance would continue this tradition. Because construction of a new entrance or continued operation of the existing one would result in negligible effects on the West Entrance Road cultural landscape, this impact topic was dismissed from further consideration.

### Ethnographic Resources

The NPS defines ethnographic resources as "the cultural and natural features of a park that are of traditional significance to traditionally associated peoples" (NPS 2001:57).

For at least the last 10,000 years Native Americans occupied the greater Yellowstone area. A number of tribes were historically present in the area on at least a seasonal basis. These tribes may have included the Bannock, Blackfeet, Crow, Kiowa, Nez Perce, Salish, and Shoshone. During the early and middle 19<sup>th</sup> century, Euro-American explorers documented year-round occupation of areas with the park by a band of Shoshone Indians known as the Sheepeaters.

Today the tribes who are affiliated with Yellowstone National Park, and with whom consultation occurs on a semi-annual basis, are (in addition to the tribes listed above): Assiniboine and Sioux Tribes; Cheyenne River Sioux Tribe, Cour d'Alene Tribe; Crow Creek Sioux Tribe, Flandreau Santee Sioux Tribe, Gros Ventre & Assiniboine Tribes; Lower Brule Sioux Tribe, Northern Arapaho Tribe; Northern Cheyenne Tribe; Oglala Sioux Tribe, Rosebud Sioux Tribe, Sisseton-Wahpeton Sioux Tribe, Spirit Lake Sioux Tribe, Standing Rock Sioux Tribe, and Yankton Sioux Tribe.

An ethnographic overview of Yellowstone National Park was completed in September 2000 and was published in 2002. The overview did not identify ethnographic resources specifically associated with the West Entrance area, but did identify two different historic trails that passed near the area, the Bannock Trail and the Nez Perce (Nee-Me-Poo) National Historic Trail. The Bannock, Shoshone and Nez Perce Indians followed the former trail from the Snake River Valley to and across the Yellowstone Plateau, especially from the 1840s to the 1870s in search of the bison that remained in southern Montana and on the plateau. This trail crossed Targhee Pass, proceeding first north to the Horse Butte area, then east along Duck Creek into the modern-day park, then south toward Cougar Creek, at which point it turned northeast to cross the Gallatin Mountains.

In 1877 approximately 700 Nez Perce Indians led the U.S. Army on one of the greatest chases in military history. This group of men, women, and children passed through Yellowstone National Park on their flight, skirmishing three times in the park with early park visitors. Their route into the park followed the Madison River up to and along the Firehole River to Nez Perce Creek, which they followed up and across the Solfatara Plateau. While the route the Nez Perce took through the Yellowstone area is uncertain, it may have passed through the immediate West Entrance area. After brilliantly eluding the Army for over 1,200 miles, they were forced to surrender in October at the Bearpaw Mountains in Northern Montana. Today their route is memorialized as the Nez Perce (Nee-Me-Poo) National Historic Trail. Visitors traveling into Yellowstone from the West Entrance follow this trail for most of the way to Old Faithful (Nabokov and Loendorf 2002).

Because the immediate West Entrance area has not been identified as having or being one of these or other ethnographic resource(s), and construction of this alternative would occur on previously impacted land within the developed footprint of the West Entrance, this project is expected to have no or negligible impacts on ethnographic resources. Therefore, this topic was dismissed from further consideration.

In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed. Additionally, the National Park Service will ensure that each tribe traditionally associated with the lands of Yellowstone receives a copy of this EA for review and comment. If any tribe identifies ethnographic resources that this project would impact, the NPS will consult with the tribes to mitigate such impacts. The location of any such ethnographic sites would remain confidential.



**Table 1: Comparative Summary of Alternatives and Extent to Which Each Meets the Project Objectives**

	<b>Alternative 1: No Action</b>	<b>Alternative 2: Preferred/2,300-foot option</b>	<b>Alternative 3: 1,500-foot option</b>
<b>Summary of Alternatives</b>	Current entrance would remain in use. Chamber of Commerce would not be enlarged.	NPS would construct new entrance 800 feet east of existing one. New adjacent office building would feature sustainable design technologies, expanded office space, break room, meeting room, and secure storage. Four new kiosks would have forced-air ventilation and ergonomic design, and adequate spacing for wide vehicles. Existing canopy would be dismantled, remodeled, and refurbished, and would be taller. Canopy would have noise and pollution-reduction features. Express lane would be well-marked with adequate approach lane and Automatic Vehicle Identification (AVI) technology. NPS would enlarge the West Yellowstone Chamber of Commerce, featuring improved signage, a larger information desk, staff offices, and a 50-person multi-purpose room.	NPS would reconstruct entrance on existing site. New adjacent office building would feature sustainable design technologies, expanded office space, break room, meeting room, and secure storage. Four new kiosks would have forced-air ventilation and ergonomic design, and adequate spacing for wide vehicles. Existing canopy would be remodeled and refurbished, and would be taller. Canopy would have noise and pollution-reduction features. Express lane would be well-marked with AVI technology. NPS would enlarge the West Yellowstone Chamber of Commerce, featuring improved signage, a larger information desk, staff offices, and a 50-person multi-purpose room.
<b>PROJECT OBJECTIVES</b>			
<b>Structural Problems</b>	The Entrance would not be rebuilt. Oversize vehicles would continue to hit the canopy and kiosks. Exhaust fumes would continue to collect under the canopy. Project would not meet this objective.	Reconfiguration of kiosks and canopy would create wider, taller traffic lanes. Installation of sound baffles would reduce traffic noise. Improved traffic flow, installation of gables and fans, and alignment of side road with prevailing winds would reduce air pollution. Project would meet this objective.	Reconfiguration of kiosks and canopy would create wider, taller traffic lanes. Installation of sound baffles would reduce traffic noise. Improved traffic flow and installation of gables and fans would reduce air pollution (though not as much as Alt. 2). Project would meet this objective.
<b>Geographic Problems</b>	Vehicles would continue to back up into West Yellowstone. Express lane would remain underused. Entering traffic would remain confused and congested. Project would	Moving entrance 800 feet east would reduce congestion. Improved signage, reaction distance, and AVI technology would improve traffic flow and utilization of express lane. Project would meet this objective.	Improved signage and AVI technology would improve traffic flow and utilization of express lane. Retention of entrance at current location would make some entering traffic confused and congested. Project would not meet this objective.

	not meet this objective.		
<b>Project Objectives</b>	Alternative 1: No action.	Alternative 2: Preferred/2,300 foot option.	Alternative 3: 1,500 foot option.
<b>Visitor Service Problems</b>	Visitors would continue to find facilities for information and permit dispersal inadequate, or miss the Chamber entirely. Project would not meet this objective.	Enlarging contact station with improved signage would serve more visitors, more effectively and efficiently. Project would meet this objective.	Enlarging contact station with improved signage would serve more visitors, more effectively and efficiently. Project would meet this objective.
<b>Health &amp; Safety Problems</b>	Employees would continue to be exposed to 1) unhealthy exhaust fumes; 2) inadequate ergonomic working environments; 3) traffic hazards in the express lane, when walking to the kiosks, and when extricating vehicles; and 4) rodent and safety storage problems. Project would not meet this objective.	Kiosks would be designed to be ergonomically excellent. Wider and taller lanes would remove need for traffic control. Marked crosswalks would improve pedestrian safety. Canopy improvements would reduce noise and air pollution problems. New office building would minimize rodent and safety storage problems. Project would meet this objective.	Kiosks would be designed to be ergonomically excellent. Wider and taller lanes would remove need for traffic control. Marked crosswalks would improve pedestrian safety. Canopy improvements would reduce noise and air pollution problems. New office building would minimize rodent and safety storage problems. Project would meet this objective.
<b>Office Needs</b>	Inadequate office space, money counting space, meeting space, and break room space would remain the norm. Project would not meet this objective.	New office building would provide adequate office space (including private offices), secure money counting and storage areas, meeting space, and employee break room. Project would meet this objective.	New office building would provide adequate office space (including private offices), secure money counting and storage areas, meeting space, and employee break room. Project would meet this objective.
<b>Environmental Sustainability</b>	Antiquated HVAC system would remain. Lack of passive solar construction would remain. Air pollutants would continue to collect under canopy. Project would not meet this objective.	New office building would feature clerestory and Trombe wall for passive solar heating and lighting. HVAC system would be more efficient than today. Air pollution would be reduced, as mentioned above. Reuse of canopy promotes sustainability. US Green Building Council would promote sustainability. Project would meet this objective.	New office building would feature clerestory and Trombe wall for passive solar heating and lighting. HVAC system would be more efficient than today. Air pollution would be somewhat reduced, as mentioned above. Reuse of canopy promotes sustainability. US Green Building Council would promote sustainability. Project would meet this objective.



## ALTERNATIVES CONSIDERED

### Alternative 1: No Action

The Council on Environmental Quality provides two definitions for no-action alternatives: (1) no action for plans is no change from current management direction (a snapshot in time projected into the future), a continuation of existing conditions and activities without a particular planning context; or (2) no action for projects is to not do the project (Council on Environmental Quality, "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" (40 CFR 1500-1508, *Federal Register* Vol. 46, No. 55, 18026-18038, March 23, 1982: Question 3)).

In this case the no-action alternative is to continue use of the existing entrance station and continue partial staffing of the Chamber of Commerce; the NPS would not construct a new entrance station and the contact station arrangement would remain as is.

Use of the existing entrance station would continue without significant modifications; no additional structures would be built. Large vehicles would continue to hit or scrape either the kiosks or the canopy. Rangers would continue to block outbound traffic to admit such vehicles. When oversize vehicles hit the canopy or get stuck in traffic, vehicles would continue to back up into the town of West Yellowstone. Staff would continue to cope with the minimal office space available, air pollution problems, and noise problems. Periodic maintenance of the buildings would occur, but major renovations would be unlikely.

Visitors would continue to find insufficient provision for their needs at the current station. Those needing fishing or backcountry permits would have to use the inadequate office space available at the warming hut/permit desk. Visitors wanting information about the park may continue to miss the Chamber of Commerce, and may find it too small for their needs.

### Alternative 2 (Preferred Alternative): 2,300 Foot Option

Construct a New Entrance 800 Feet East of the Current One and Expand Current Chamber of Commerce Building

Under this alternative, the NPS would construct a new West Entrance about 2,300 feet east of the park boundary (about 800 feet east of the existing entrance). This was the site of the 1955 contact station, whose impacts are still readily discernible. It is due north of the northeast corner of the Yellowstone General Store warehouse area, from which point convenient utility connections would be possible. The added distance to the park boundary would provide an increased queuing distance for entering visitor traffic. The new entrance would feature a 3,200 square foot office building on the south side of the entrance road. The canopy structure sheltering the current entrance would be dismantled and moved to the new site, where it would be reassembled, renovated, and remodeled to improve air flow and noise absorption. Under it the NPS would construct four new kiosks in a more rustic style. Kiosks would be spaced to allow wider vehicles to enter, and each kiosk would

have a dedicated traffic lane. One lane and kiosk would be an express lane for reentering visitors and park employees. Figures 1 through 4 illustrate the Entrance Station Site Layout, Administration Building Site Elevations and Floor Plans, and Entrance Station Site Plan. This new entrance, then, would solve the height, width, air pollution, noise pollution, office, and queuing problems of the current entrance station.

Concurrently, the National Park Service would expand the Chamber of Commerce building in West Yellowstone to better serve visitor needs. The expansion would occur on the south side of the Chamber building and would be about 4,200 square feet in size. The addition would feature an expanded visitor information desk and lobby, a multi-purpose room capable of seating fifty people, additional restrooms, offices for NPS interpretive staff, a backcountry permit room, and storage space for NPS personnel. Because the National Park Service may not expend its line-item funds on lands it does not own or lease, both the Town of West Yellowstone (owner of the expansion land) and the Chamber of Commerce (owner of the building) have agreed to a long-term lease arrangement that would allow the NPS to expand the building. Figures 5 and 6 illustrate the proposed Contact Station Site Elevation and Floor Plans.

All buildings would be sited and (re)designed in accordance with the National Park Service's *Guiding Principles of Sustainable Design* (1993), which provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of biodiversity, and encourages responsible decisions. The U.S. Green Building Council (USGBC) will provide assistance in designing a model sustainable building. To accomplish that end, the entrance would be site and energy efficient, would minimize waste, use recycled and reused construction materials, and use nontoxic materials. The building would incorporate a clerestory, which is a second-story south-facing window that would provide significant day-lighting year-round and would admit winter sunshine for passive solar heating. The USGBC has also agreed to donate reused and recycled construction materials for the entrance station. The heating and ventilation system and the lighting systems would be automated and high efficiency. The administration building would feature a Trombe wall as a passive solar heat sink. Finally, Yellowstone National Park would encourage all suppliers, permittees, and contractors to follow sustainable practices.

To recognize the USGBC's contribution and to promote sustainable design and construction, the National Park Service would attempt to educate visitors on the ideas and materials used in this construction. School group tours and brochures explaining the sustainable ideas would be offered, as well as information on Yellowstone's website.

More specific details on the phases of this proposal appear after the following figures.

Figure 1a: Alternative 2 Site Layout

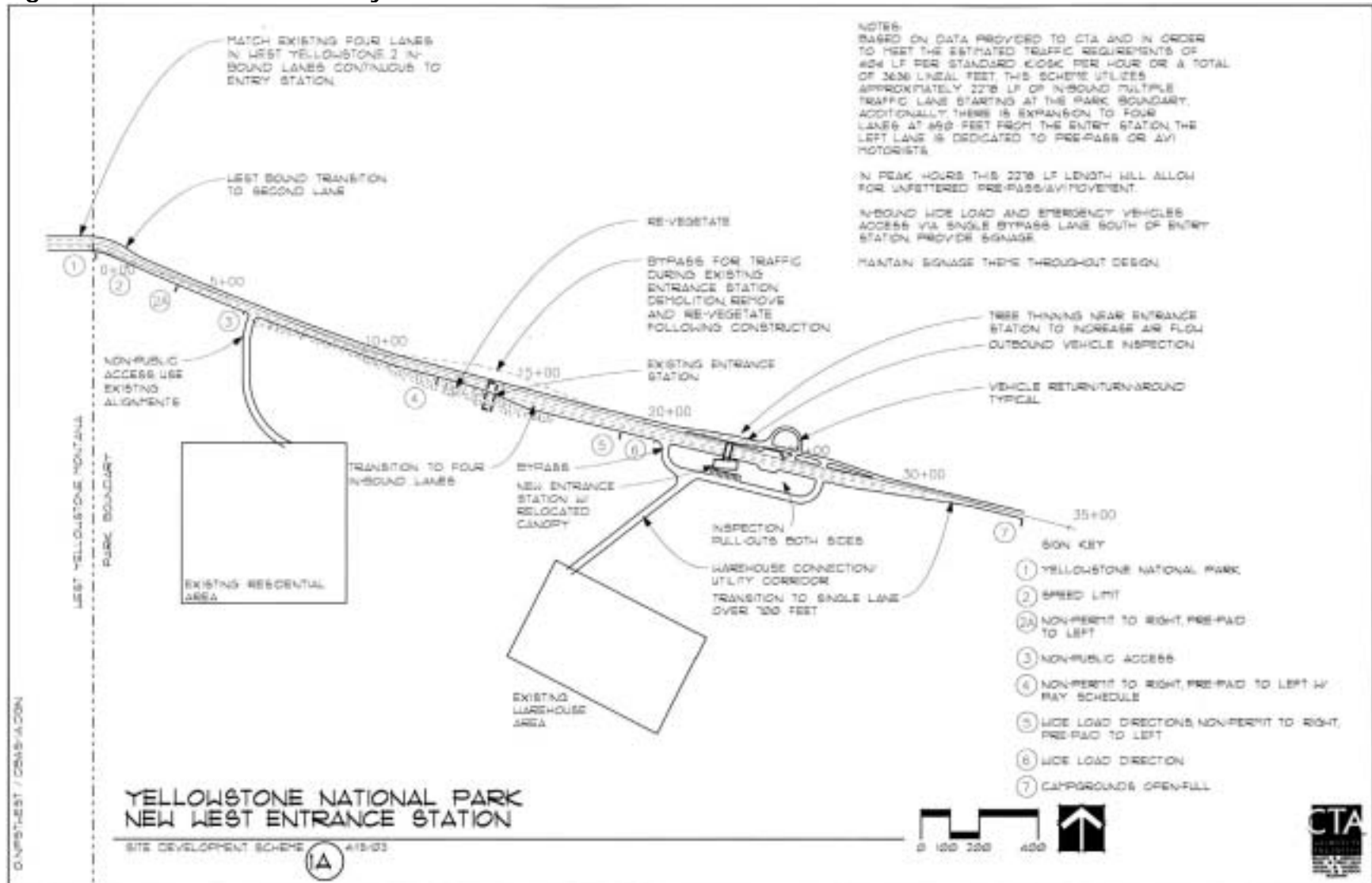


Figure 1b: Alternative 2 Site Layout, Entrance Station Detail

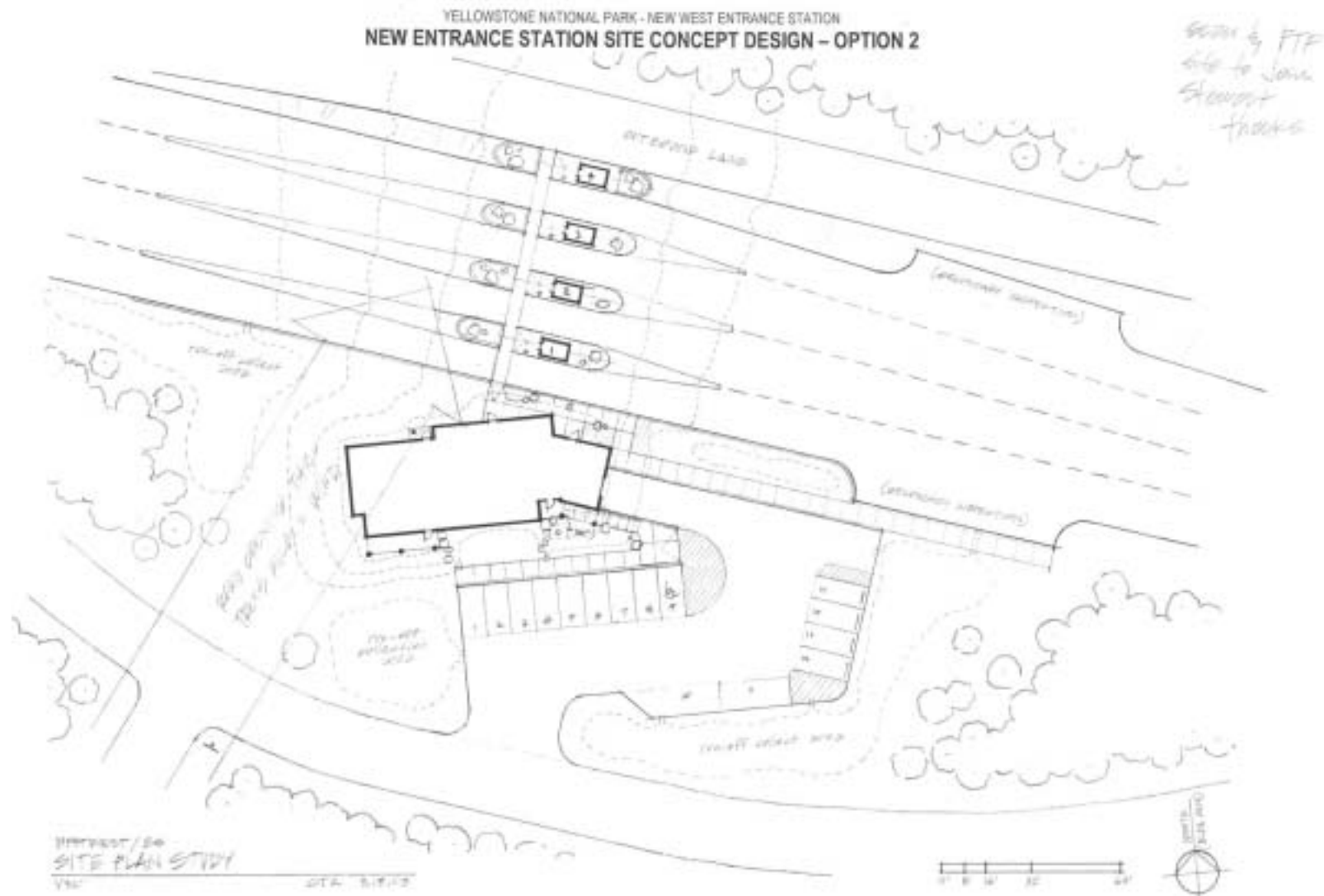
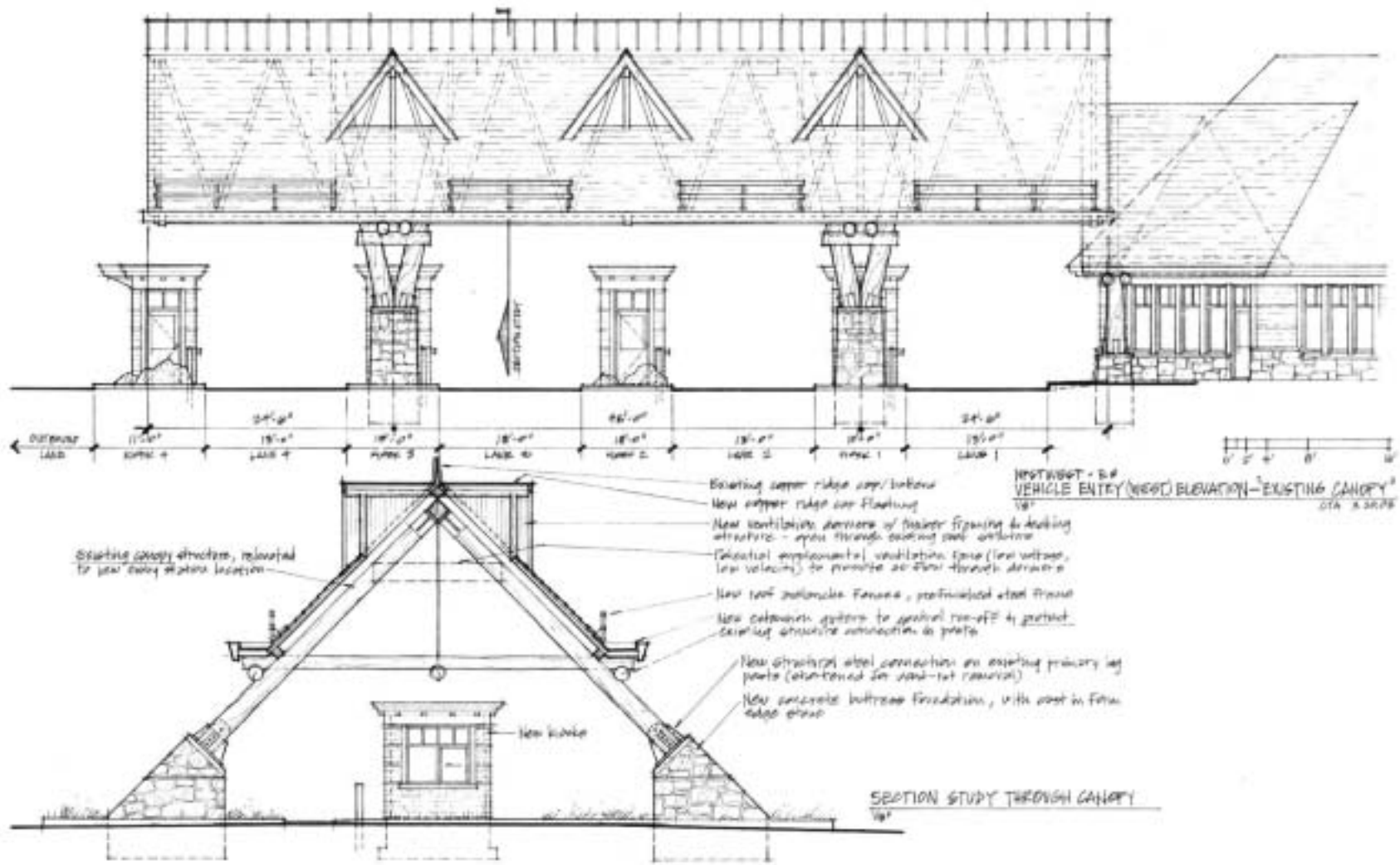


Figure 2: Alternative 2 New Entrance Station/Canopy Renovation and Remodeling

YELLOWSTONE NATIONAL PARK - NEW WEST ENTRANCE STATION  
NEW BUILDING CONCEPT DESIGN (EXISTING CANOPY) - OPTION 2



**Figure 3: Alternative 2 New Administration Building Site Elevation, North View**





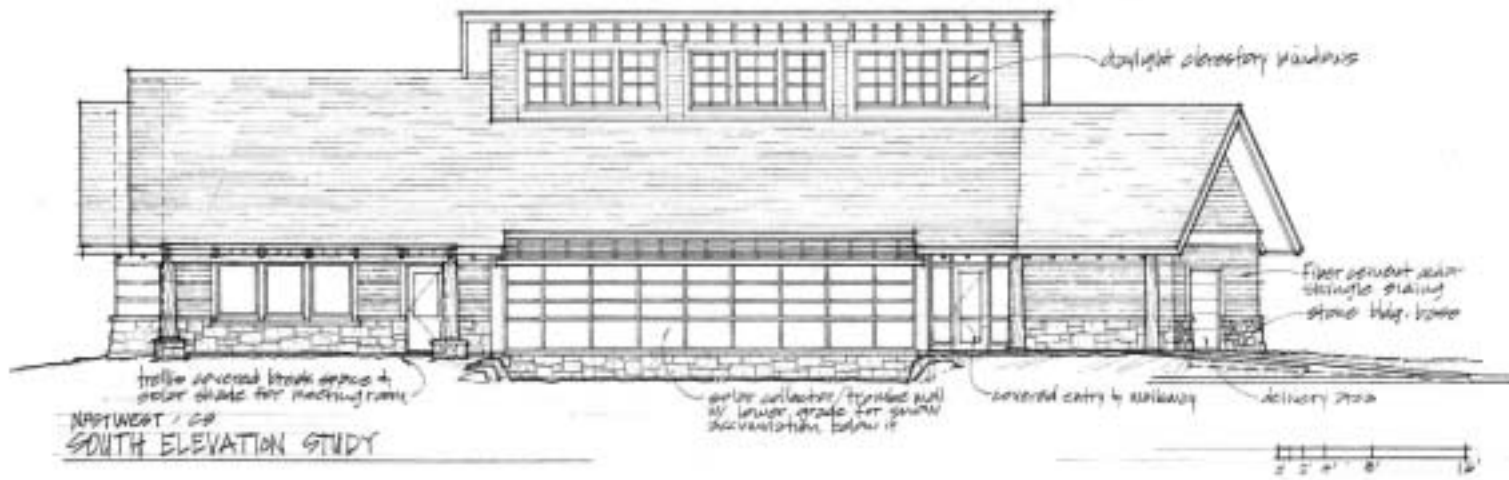


Figure 3, Continued: Alternative 2 New Administration Building Site Elevation, South View

YELLOWSTONE NATIONAL PARK - NEW WEST ENTRANCE STATION  
NEW BUILDING CONCEPT DESIGN - OPTION 2



100% WEST / 00  
WEST ELEVATION STUDY

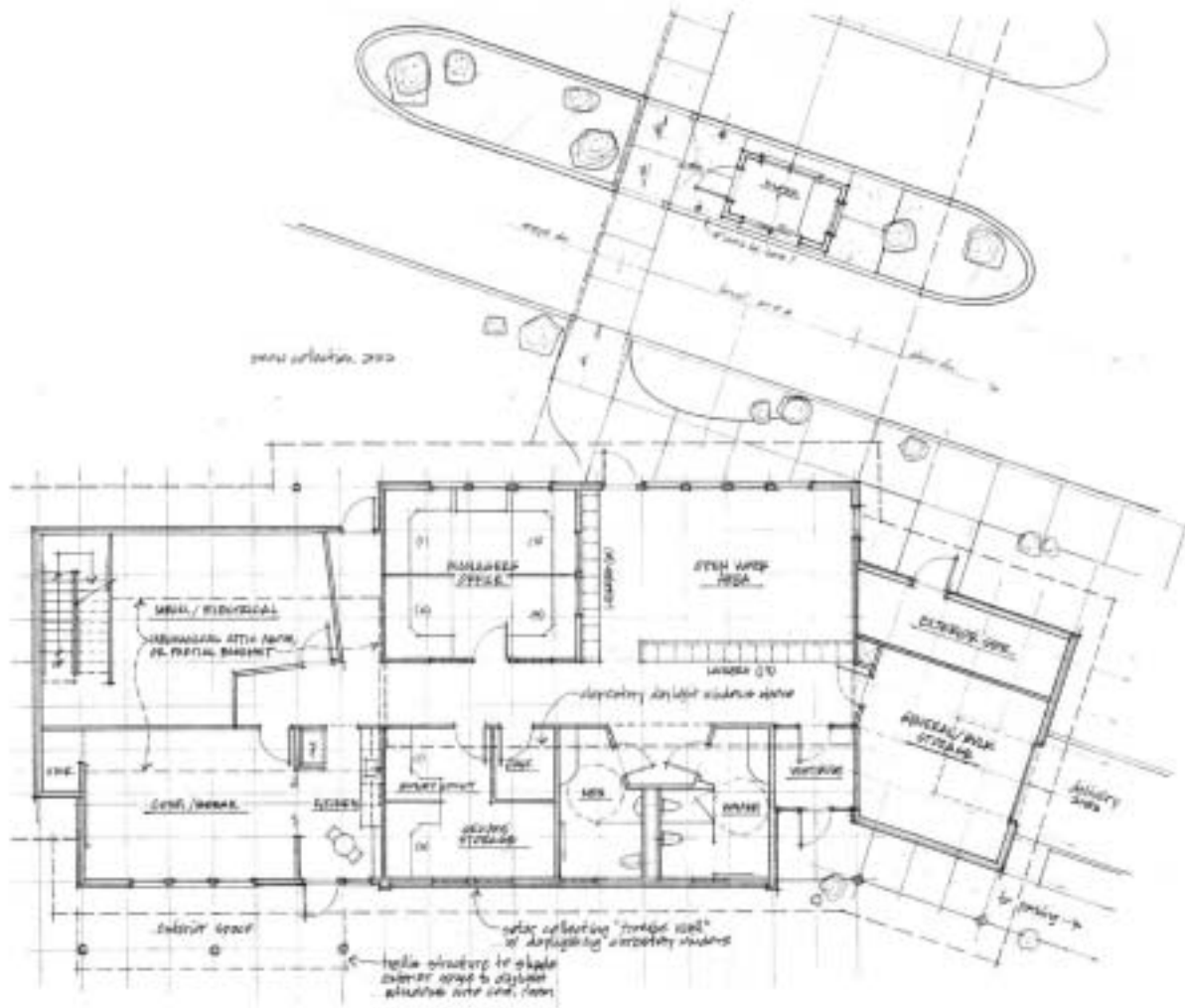


100% WEST / 00  
SOUTH ELEVATION STUDY

**Figure 4: Alternative 2 New Administration Building Floor Plan**



YELLOWSTONE NATIONAL PARK - NEW WEST ENTRANCE STATION  
NEW BUILDING CONCEPT DESIGN - OPTION 2

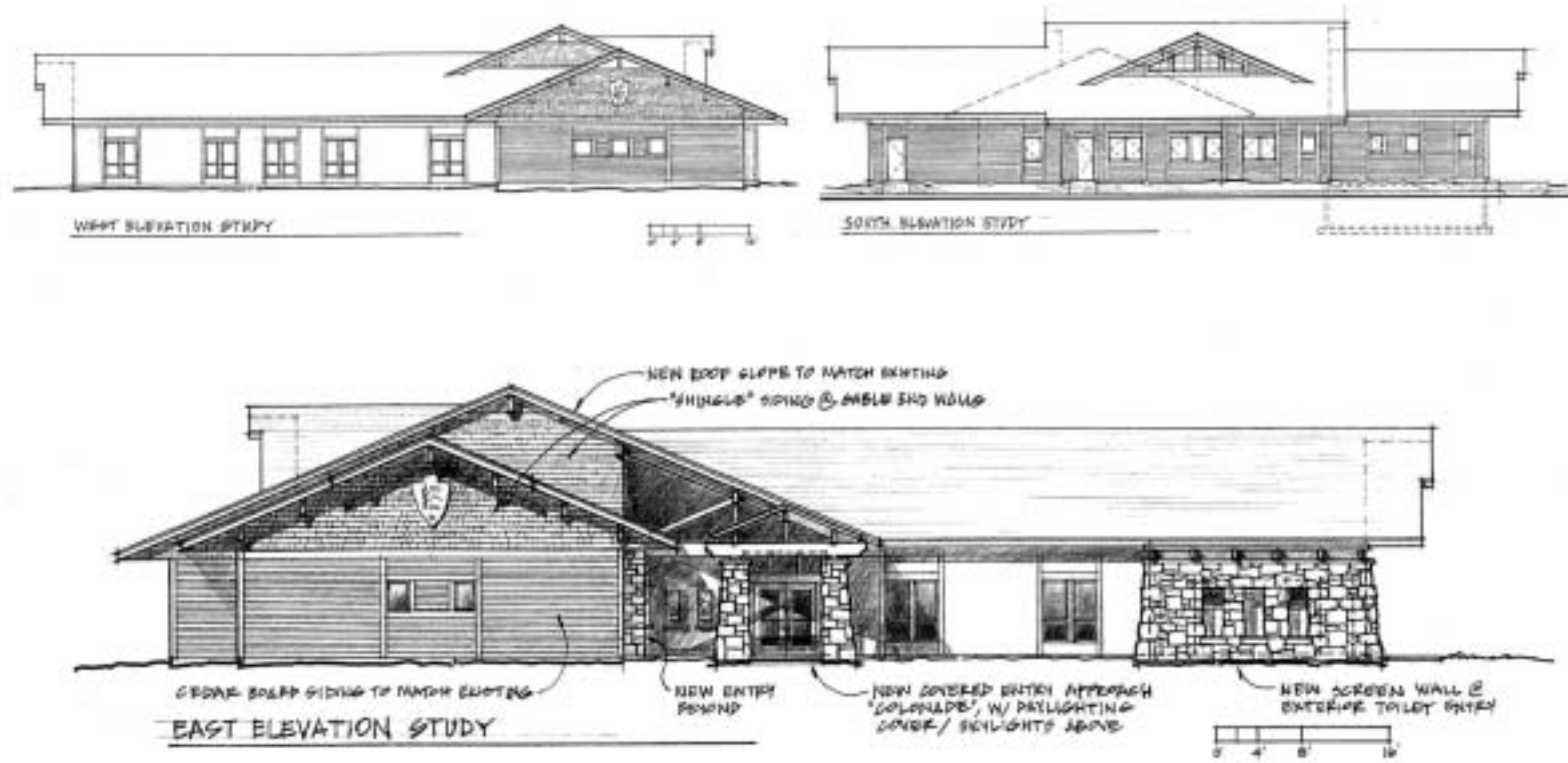


WEST  
MAIN FLOOR PLAN STUDY  
DATE 2.14.99



Figure 5: Alternative 2 Contact Station Addition Site Elevation

YELLOWSTONE NATIONAL PARK - NEW WEST ENTRANCE VISITOR CONTACT STATION  
NEW BUILDING CONCEPT DESIGN - OPTION 2



**Figure 6: Alternative 2 Contact Station Floor Plan**







The new office building (Figures 1, 3 and 4) would be located immediately south of the entrance station and about 800 feet east of the current entrance. It would be a one-story building approximately 3,200 square feet in size. The building would include managers' offices, an open work area for employees, a secure storage and money counting area, a conference/break room, and mechanical/electrical area, along with exterior storage space. The building would have a clerestory, which is a large south-facing window above the main floor. Such a window allows for significant passive solar heating and natural day-lighting. A Trombe wall would also be built to absorb heat and radiate it out at night. The building architecture would feature some stone masonry and log construction, matching the canopy.

As noted above, this option would dismantle the canopy structure and reassemble it at the new site (Figure 2). Damaged and rotted elements would be replaced. The canopy would be raised two feet to provide 15 feet of clearance, thereby accommodating the tallest vehicles (a bypass would be provided for over-height vehicles; see below). Natural stone veneer would be added to the canopy bases to improve their bare concrete appearance. Three dormer windows would be added to each side of the canopy to admit air, and four large new fans would be installed inside the canopy to create a downward-forced air flow. These two elements would serve to move air out from under the canopy, thereby reducing the accumulation of noxious air pollutants. Sound baffles would be installed under the canopy to reduce the noise to which visitors and employees are exposed. As noted above, the canopy provides important shelter from nature's elements for the employees. Of the various canopy options considered, this option was the least expensive and promotes sustainability through reuse of an existing structure.

The entrance lanes and kiosks would be reconfigured and rebuilt under the canopy. Instead of the three lanes (the express lane and two full-service lanes) currently located between the massive canopy supports, only two lanes with their kiosks would be placed. The third and fourth lanes and kiosks would be built outside of the supports, but still under the canopy. The northernmost lane (on the entering visitor's far left) would be an express lane for re-entering visitors and park employees. Rather than moving the existing deficient kiosks, the NPS would construct new kiosks using architecturally pleasing elements such as wood shingle siding. The kiosks would also be more ergonomically sufficient than the current kiosks.

Under a cooperative agreement, the State of Montana would provide matching federal funds for the installation of the express lane and 2,000 Automatic Vehicle Identification (AVI) tags for NPS and concession employees. Such tags, mounted on employees' vehicles, would be electronically scanned as the employee approaches the gate. Successful reading of the tags would automatically turn the traffic light at this gate green, allowing the vehicle to proceed. Through this manner employees would be able to enter this gate even when it is unstaffed, allowing entrance personnel to focus their attention on entering visitors. This system has been successfully tested at Yellowstone's North and Northeast Entrances, and expedites entry for park employees while allowing entrance rangers to focus on visitor needs. The AVI Lane would double as an express lane for reentering park visitors during the morning rush hours. At slower times, though, the visitor express lane could be shifted one

lane to the right, or south, thereby providing separate AVI and express lanes and further expediting entry of vehicles.

Changes would occur on the entrance road as well (Figure 1). This alternative would keep two eastbound lanes from the boundary to the site of the current entrance station. At that point, a third lane would appear, with a fourth lane appearing shortly thereafter. The four queuing lanes would each stretch approximately 600 feet to the entrance kiosks. Three signs at the 400 foot, 1,200 foot, and 1,900 marks (as measured from the boundary) would direct re-entering traffic to the leftmost open lane. Proceeding around the south side of the administration building and entrance station would be a controlled-access bypass lane, which would allow emergency vehicles a faster route around the entrance plaza and its near-stationary vehicles. This bypass could also be used by the few vehicles (almost all of which are contractor vehicles) too tall or wide to fit under the reconstructed canopy. Finally, a new access road about 500 feet long would be built from the Yellowstone General Stores Warehouse to the Entrance Station. The road would align with prevailing southwest winds, creating additional wind circulation at the entrance and further reducing air pollution. Utility extensions would be routed under or along this new access road from the Yellowstone General Store Warehouse area to the new entrance station. Data line connections would be routed from the NPS West District Office in the NPS Administrative area along the government access road east to Yellowstone General Store Warehouse area and thence to the new entrance. When possible, utility lines would be laid with Ditch-Witch techniques (i.e. with the data line), but sewer and water lines would need to be excavated. Routing utilities along this road would minimize ground disturbance.

The National Park Service would also fund an expansion of the existing Chamber of Commerce building in West Yellowstone to better serve visitor needs (Figures 5 and 6). The expansion would add about 4,200 square feet to the south side of the existing contact station. It would contain a larger information desk and lobby, a 50-person meeting room, offices for employees and supervisors, a backcountry office and video viewing room, storage, public restrooms, and a small staff restroom. The basement would contain utility functions and a small amount of additional storage. The addition would be built in a style that complements both the existing chamber building style and the rustic style of the nearby historic Union Pacific Depot and Dining Hall buildings, using elements of native stone and log. Finally, the addition would include a clerestory and some recycled materials.

This project would be funded by congressional line-item appropriation to the National Park Service, who must spend such funds on projects within national park boundaries. Therefore, the land for the Chamber expansion must be donated or provided via a long-term lease to the National Park Service by its owner, the Town of West Yellowstone. The Land and Water Conservation Fund allows the National Park Service to make minor boundary adjustments of this nature when doing so "will contribute to, and is necessary for, the proper preservation, protection, interpretation, or management of an area of the national park system." (16 U.S. Code Annotated, Chapter 1, Subchapter LXIX, Part B, Section 4601-9, (c) (1)). The National Park Service proposes to use the authority provided by this act to acquire or lease the land for the Chamber expansion. The addition proposed under this alternative would clearly meet these objectives, along with the other stipulations of the act, which follow:

- 1) The acreage to be added is less than 200 acres in size;
- 2) The acquisition is not a major Federal Action significantly affecting the quality of the human environment;
- 3) The value of the acquired lands is less than \$750,000 in value;
- 4) The proposed boundary revision is not an element of a more comprehensive boundary modification proposal;
- 5) The proposed boundary adjustment has been subject to a public review and comment period;
- 6) All affected property owners have given their written consent; and
- 7) The lands abut National Park Service lands.

As part of the design and construction process, the National Park Service would fund a property survey to determine the land to be leased from the Town of West Yellowstone. The parcel of land is expected to be less than one acre in size with a value considerably less than \$750,000. This Environmental Assessment addresses requirement 5 by providing the public with an opportunity to review and comment on the proposal. The lease is not expected to be a major Federal Action significantly affecting the quality of the human environment, nor is it part of a more comprehensive boundary modification. The Town of West Yellowstone has given its written consent, and the inclusion of an easement to the park boundary would make the parcel contiguous to Yellowstone's boundary. The easement is necessary to connect the expansion to Yellowstone's trail and data/utility systems. The closest point of connection into Yellowstone's data network is the West District Office in the administrative area. This data line would be laid with a Ditch-Witch along existing government housing area roads and in the most direct manner possible.

Inefficiencies in the current Chamber of Commerce parking lot would be corrected by altering the current parking arrangements. For example, long-term parking would no longer be permitted there, and employees would be asked to park behind the IMAX theatre or along Canyon Street. Furthermore, traffic flow in and out of the lot may be regulated through a one way in and one way out configuration. Finally, if the situation warrants, an overflow lot on NPS property is a possibility (though not considered in this EA).

The building would be constructed in conformance with the Architectural Barriers Act of 1968 (P.L. 90-480), the Rehabilitation Act of 1973 (P.L. 93-112), and the 1984 Uniform Federal Accessibility Standards (UFAS), 49 CFR 31528. The building would also be designed to withstand earthquakes in accordance with the 1994 Uniform Building Code. West Yellowstone is about 10 miles south of the Hebgen Lake fault, which shook in 1959 with an earthquake measuring 7.4 on the Richter scale (sources vary on the exact magnitude between 7.1 and 7.8). The area is a zone of potentially strong earthquakes.

### **Alternative 3: Renovate/Remodel Existing Entrance Station/1,500 foot Option**

Rebuild the Entrance Station on the Existing Site and Expand Chamber of Commerce Building

Under this alternative, the existing canopy would be renovated and remodeled to solve most of the current problems, and the NPS would expand the West Yellowstone Chamber of Commerce as described above under Alternative 2. The only significant difference between this option and Alternative 2 is the location: where Alternative 2 would move the entrance east by about 800 feet, this one would retain it at its existing location. The administration building would be identical to that under Alternative 2, but built just south of the existing canopy. The canopy and kiosks would be renovated and remodeled just as described under Alternative 2, and the Chamber of Commerce in West Yellowstone enlarged as described under Alternative 2. Two entrance lanes from the boundary to the employee housing area road would be retained, and signage for the entrance station would be improved. The Chamber of Commerce addition would be made possible through the Land and Water Conservation Act, again as described under Alternative 2. Figures 1b, 2, 3, 4, 5, and 6 all illustrate this proposal as well; Figure 1a can be disregarded, and the West Entrance Area Map used to illustrate the site layout instead.

The difference in locations would necessitate certain other changes. Specifically, staging of the various actions would be slightly different and would require a temporary entrance while the canopy and kiosks were remodeled, and the access road from the Yellowstone General Stores Warehouse to the entrance station would remain as it is now. More detailed descriptions of these differences follow.

Staging of this alternative would proceed as follows. First, the new 3,200 square foot office building (again, the same as that proposed under Alternative 2, Figures 1b, 3 and 4) would be built immediately southwest of the existing entrance station. Upon its completion, the existing office would be removed and that space converted into an entrance lane. A bypass entrance and exit road would be built around the canopy, on the south side and near the new administration building. Also, a temporary entrance consisting of the existing kiosks would be built about 400 feet west of the existing entrance, and traffic routed through this temporary entrance and onto the bypass during remodeling of the permanent station. Canopy and kiosk renovations, remodeling, and construction would follow, again being identical to those in Alternative 2 (Figure 2). Once complete, the temporary entrance would be removed and a third lane paved from the employee housing area entrance to the remodeled entrance. Additionally, the bypass would be restricted to official/authorized (i.e. oversized) vehicle traffic, and reclamation of disturbed ground would proceed. During this entire process, the addition to the Chamber building would occur as described under Alternative 2 (Figures 5 and 6).

With the entrance remaining in its current location under this alternative, the new service road from the Yellowstone General Store Warehouse to the new entrance described under Alternative 2 would not be needed. Rather, the road alignments within the government administrative area would remain as they are now.

Upon completion, the remodeled entrance, like that in Alternative 2, would feature a new office building, three full-service entrance lanes and kiosks, one express/AVI entry lane and kiosk, and an oversized vehicle bypass immediately south of the entrance lane. The exit lane

would remain unchanged. The USGBC and State of Montana would both provide their design and development assistance with this alternative as with Alternative 2.

### **Environmentally Preferred Alternative**

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA, 42 U.S.C.A. § 4321 et seq., Public Law 91-190 (1970)), which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that "[the] environmentally preferable [alternative] is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (40 CFR § 1500 et seq.).

Given the above criteria, the National Park Service determined that Alternative 2 best fits the balance that the environmentally preferred alternative requires. Building a new entrance station in an already impacted area and close to existing utility connections, and partnering with the Chamber of Commerce to expand an existing building with extant parking in the town of West Yellowstone best meets the national environmental policy expressed in NEPA (Sec. 101(b)), to fulfill the responsibilities of each generation as trustee of the environment for succeeding generations. Construction of a new entrance at the 2,300-foot mark would solve all the problems at the existing station while improving the visitor's experience. The USGBC involvement would additionally serve to make this development as sustainable as possible. While this option would result in demolition of a structure determined to be eligible for listing to the National Register of Historic Places, that impact would be mitigated through the reuse of the canopy, which is clearly the most contributing element of the structure's historic character.

Alternative 3 is almost as environmentally preferable as Alternative 2. It would result in less acreage being cleared, and would remedy most of the structural, pollution, and safety problems inherent in the current situation. However, retention of the existing facility would mean that certain traffic problems would not be addressed—namely, that entering visitors may not have adequate reaction time to change into the appropriate lane. The 1,500 foot

distance between West Yellowstone and the entrance station is simply not enough time—even with improved signage and the 25 mph speed limit—for drivers (especially those driving large and long vehicles) to move into the correct lanes (such as the express lane) safely and in time. Stacked traffic waiting to enter the park would further exacerbate traffic problems under this alternative. Some visitors would thereby end up waiting unnecessarily in the wrong line, creating unnecessary and additional congestion, noise, and air pollution (see Appendix 2 for more detail). Moving the entrance would solve this problem and therefore provide for a more enjoyable visitor experience. Alternative 3, then, does not ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings, while Alternative 2 does.

Alternative 1 does not strike the balance between public safety and preservation and repair of features.

### **Alternatives Considered But Dismissed from Further Analysis**

During the planning process, park staff considered many alternative sites and configurations of entrance stations and contact stations. Some of these alternatives were suggested by the public during the scoping phase of the planning for the new entrance and contact stations. The interdisciplinary team considering the alternatives weighed the advantages and disadvantages of six additional ideas and places. The following discussion presents the alternative ideas and a brief discussion of their disadvantages and reasons for dismissal.

#### Using Other Private Buildings in West Yellowstone for a Contact Station

The National Park Service discussed partnering with various private businesses in West Yellowstone for the contact station portion of this project. Certain businesses have adequate space for such a contact station, but are not generally in good locations for a contact station. All options identified in this EA have better visibility and/or parking for a contact station.

#### Using Other Public Buildings in West Yellowstone, such as the Union Pacific Dining Hall, for a Contact Station

Staff also considered approaching the owners of the Union Pacific Dining Hall for permission to locate a contact station in that building. While the building could easily be adapted for such purposes, such an adaptation could greatly compromise the historic integrity of the building. Additionally, the building is not located on the primary tourist routes into Yellowstone.

#### Building a New Contact Station Inside Yellowstone Park Boundaries

The National Park Service considered building a new contact station inside park boundaries, at two different locations: the southeast corner of Canyon Street and Boundary Street (just inside the park boundary), and a location further east in the park, but within a mile of the entrance. Park staff rejected these two options for several reasons: 1) Enlarging the Chamber of Commerce building entailed the least disruption of Yellowstone's natural and cultural resources; 2) The Chamber of Commerce contact station already exists, with a Public Lands Information Desk already staffed by the National Park Service; constructing a separate building would have been a needless repetition of facilities and expense, and would have

eliminated the visitor convenience of “one-stop shopping” provided at the current Chamber; 3) Enlarging the Chamber building was less expensive than construction of an entirely new building; and 4) Partnering with the border community of West Yellowstone exemplifies the collaboration important to successful park management.

#### Constructing a New Canopy for Alternatives 2 or 3

Park staff initially considered building a new canopy to shelter the kiosks, rather than renovating and remodeling the existing one. However, the estimated cost of constructing a new canopy was significantly greater than that of reusing the existing one, even with the structural repairs and improvements included. The cost savings derive in large part from reuse of the existing materials, an added environmental benefit. Preservation of the existing canopy with its current functions also mitigates the adverse effect of demolishing the historic West Entrance. Therefore, constructing a new canopy was dismissed.

#### Constructing a New Entrance Station East of the Preferred Alternative Site (for example, near the entrance to the Barns Road).

Park staff considered building a new entrance station and contact station between the Preferred Alternative Site and the Montana/Wyoming State line. Locating the entrance station this far into the park would provide more than adequate queuing distance for entering vehicles, and could solve the other problems at the existing station. However, park staff felt that building the entrance and contact stations so far into the park would entail significant resource disruption and significantly expand the developed footprint of the West Entrance area. Logging several acres of undisturbed forest and clearing of native plant communities would have been necessary. Impacts of such construction on park wildlife and wildlife habitat, while not significant, would be greater than the preferred or no-action alternatives. Finally, park rangers felt that an entrance east of the Barns Road would remove this road (used primarily for fishing access to the Madison River) from the protection that an entrance station offers. Illegal fishing and poaching would be more likely to occur if the perpetrators of such could enter the area without passing through the entrance station.

#### Including Advanced Entry Pass Technology for Visitors in the Entrance Station

Yellowstone staff also considered including advanced technology for visitors as part of the entrance station, and/or requiring all visitors to have pre-paid entrance passes. Both Alternatives 2 and 3 already include Automatic Vehicle Identification passes for park employees, but not for visitors. Technology and distribution systems in the area and in West Yellowstone are not yet capable of supporting this idea for visitors. It is virtually impossible to compel all summertime visitors to stop in town to purchase prepaid passes. Winter visitors are required to possess pre-paid passes already, and town merchants and the NPS are successful at reaching the majority of visitors before they arrive at the entrance. Still, many often do arrive without such passes, and must backtrack into town for them. The number of summertime visitors dwarfs the winter visitors, making it extremely unlikely that any attempts to compel summertime visitors to possess prepaid passes would succeed. Traffic snarls created by compelling summer visitors to backtrack into West Yellowstone to purchase such passes would negate any benefits to rebuilding the entrance station, as proposed. Furthermore, rangers will always need to be present at the entrance, to answer visitor questions and to control who and what vehicles enter the park, so such advanced

technology is unlikely to ever completely remove the need for an improved entrance. Finally, the new entrance station can always be retrofitted to include such technology if and when it becomes available.

## AFFECTED ENVIRONMENT

### Natural Resources

#### Geology and Soils

Yellowstone National Park is mainly a volcanic plateau varying in elevation from about 1,610 meters (5,300 feet) along the Yellowstone River in Montana to 3,460 meters (11,360 feet) at Eagle Peak along the eastern boundary of the park in Wyoming. Mountains surround the plateau except to the southwest, where the plateau descends to the lower Snake River plains of Idaho. The park encompasses mountains, canyons and valleys cut by streams flowing from the Continental Divide.

All alternatives would take place at the western edge of Yellowstone National Park, outside of the caldera left from the last explosive volcanic eruption 600,000 years ago. The West Entrance area is characterized by very flat topography and sandy, rhyolitic soils. These soils are poor in calcium, phosphorus, magnesium, nitrogen, and potassium, and do not hold water well. No soils in any of the alternative locations are saturated or unique soils.

#### Vegetation

The dominant vegetation in the West Entrance area is the lodgepole pine forest found throughout the higher elevations of the Yellowstone area. Lodgepole pine (*Pinus contorta*) is the dominant forest cover type, with about 50-75% coverage. The understory is dominated by elk sedge (*Carex geyeri*), with several other species distributed sparsely through the forest such as kinnikinnick (*Arctostaphylos uva-ursi*), Wheeler's bluegrass (*Poa nervosa*), and little ricegrass (*Oryzopsis exigua*). The few forest openings are sparsely vegetated with species such as bitterbrush (*Purshia tridentata*), bluebunch wheatgrass (*Elymus spicatus*), wild buckwheat (*Eriogonum* spp.) and pussytoes (*Antennaria* spp.). The dry, infertile soils support a low biodiversity.

#### Wildlife

Yellowstone has sixty species of mammals, twelve species of native fish, five species of nonnative fish, six species of reptiles, four species of amphibians, and more than 300 species of birds. Among the mammal species are seven species of native ungulates and two bear species.

A variety of large mammals are known to make use of the West Entrance area, although no major species frequent the immediate entrance area. Species include bison (*Bison bison*), elk (*Cervus elaphus*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), grizzly bear (*Ursus arctos*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), wolf (*Canis lupus*), and coyote (*Canis latrans*). Park biologists examined the potential for disturbance and habitat loss associated with construction of the proposed entrance station by examining recent patterns of presence and distribution for these species.



### *Elk and Bison*

Bison and elk use the West Entrance area in small numbers—the area is at the western edge of the Madison-Firehole elk and bison herd range. The two species are attracted to the small forest meadows and larger meadows near the Madison River to the north. The Madison elk herd is non-migratory, and its population has been stable at 375-500 animals for the last 30 years. The bison herd migrates to the Hayden Valley area in summer; its population is growing. Parkwide bison populations currently number 3,000-3,600.

Bison eat mostly grasses and sedges, such as are found in the forest and river meadows. Calves are born in the wintering areas generally between about April 15 and May 31 of each year. Bison seek relatively high ground with some forest cover to give birth. Elk cows give birth slightly later in the spring than bison, in various places along meadows and edge areas of the Madison River. After calving, the next most sensitive time of year for elk is during the rut in September and October. At this time bulls seek open meadows and areas of good visibility when procuring and defending harems.

Both bison and elk succumb to winter-kill. Although this does not occur at a consistent rate from year to year, it provides an important food source for scavengers, including coyotes, bald eagles, wolverines, and black and grizzly bears, in late winter and spring. After their emergence from winter dens, grizzly bears in Yellowstone use carrion and weakened ungulates, including calves, as a primary food source (Knight and Eberhardt 1985). The reproductive success of female grizzlies is at least partly dependent on the availability of carrion on spring ranges (Mealey 1975; Picton 1978).

### *Moose and Mule Deer*

Both moose and mule deer are known to use the West Entrance area, but sightings of both are uncommon. The area is not good habitat for either species.

### *Black bears*

Black bears are dispersed throughout the park. Although there is habitat overlap with grizzly bears, black bears spend more time within and near forested cover, whereas grizzly bears make more use of non-forested meadows. Foods eaten by black bears include grasses, sedges, forbs, cutthroat trout, ants, army cutworm moths, roots, berries, elk calves, and ungulate carrion. Based on vegetation cover types, the area within 3 km of the West Entrance is primarily low quality bear habitat during spring, and moderate quality habitat during the summer and fall (Gunther et al. 1998). From 1984-2002, there were 33 reports of black bear activity within 3 km of the West Entrance; four of these were within the development area boundary.

### *Mountain Lions*

Army scouts and the first NPS rangers nearly eliminated mountain lions from Yellowstone at the same time that they killed off wolves, in the 1920s. In the last 30 years, lions have recolonized those parts of Yellowstone that provide suitable prey—namely, the northern range area, where deer and elk are more common and snow depths are less. Generally, mountain lions are rarely reported in the West Entrance area, probably due to the low numbers of their preferred prey. However, two mountain lions were killed by vehicles on the West Entrance road in the past four years, and lion tracks and kills were located along the Madison and Firehole Rivers during winter 2002 and 2003.

### *Grizzly bears, wolves, and lynx*

These species are discussed in the "Threatened and Endangered Species" section below.

### *Small and mid-sized mammals*

Small and mid-sized mammals observed along the West Entrance road include the coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), beaver (*Castor canadensis*), red fox (*Vulpes vulpes*), pine marten (*Martes americana*), porcupine (*Erethizon dorsatum*), river otter (*Lutra canadensis*), long-tail weasel (*Mustela frenata*), red squirrel, (*Tamiasciurus hudsonicus*), field mice (*Peromyscus maniculatus*), voles (*Microtus pennsylvanicus*), and pocket gophers (*Thomomys talpoides*).

Red fox, bobcat, and badger are rarely reported but may be present in the meadows near Madison Junction in winter. Smaller mammals such as weasels, pine marten, porcupine, pocket gophers, voles, mice, and red squirrels are common in the forests of central Yellowstone. Riparian species such as river otter, muskrats, and mink are found along the local rivers (Biel and Gunther 1994). Beaver are found in the Madison River drainage within the park but are seldom seen from the West Entrance Road. Few of these species are seen in the immediate West Entrance area.

### *Amphibians and Reptiles*

While no herpetological survey of the immediate West Entrance area has been performed, amphibians and reptiles of concern are unlikely to occur there due to its generally dry and cold nature. Surveys of two nearby road segments have been performed, and provide indications of what amphibians and reptiles are likely to occur in the West Entrance area. A survey of the Madison to Norris segment of the Grand Loop Road was conducted in 1994 (Peterson, Patla, and Sullivan 1995). Based on historical records and the 1994 survey results, four species of amphibians, the blotched tiger salamander (*Ambystoma tigrinum melanos*), western (boreal) chorus frog (*Pseudacris triseriata macular*), spotted frog (*Rana pretiosa*), and western (boreal) toad (*Bufo boreas boreas*) were found. The surveyors also found three species of reptiles, the (northern) sagebrush lizard (*Sceloporus graciosus graciosus*), rubber boa (*Charina bottae*), and western terrestrial (wandering) garter snake (*Thamnophis elegans vagrans*). Similarly, the Madison to Biscuit Basin road segment was surveyed in 1993. Surveyors found the same seven species, plus a historic observation of a spadefoot toad (*Spea spp.*) (Peterson, Askey, and Patla 1993). Finally, a 2002 survey of the Madison wastewater treatment plant area found spotted frogs and garter snakes, both in wetland areas (Jochimsen 2002).

None of these seven species are endangered or threatened species. Further, the absence of wetlands in the project vicinity makes their occurrence unlikely there. None of the project alternatives are likely to adversely affect amphibians or reptiles in Yellowstone National Park.

### *Birds*

Yellowstone National Park is home to a wide array of seasonally migrant and year-round resident bird species. One threatened or endangered bird species occurs in Yellowstone National Park, the bald eagle (See "Threatened and Endangered" section).

The more common birds in the West Entrance area include Canada geese (*Branta canadensis*), ruffed grouse (*Bonasa umbellus*), sandhill cranes (*Grus canadensis*), great horned owls (*Bubo virginianus*), gray jays (*Perisoreus canadensis*), Clark's nutcrackers (*Nucifraga columbiana*), mountain bluebirds (*Sialia currucoides*), cliff swallows (*Hirundo pyrrhonota*), common ravens (*Corvus corax*), dark-eyed juncos (*Junco hyemalis*), hermit thrush (*Catharus guttatus*), robins (*Turdus migratorius*), ruby-crowned kinglet (*Regulus calendula*), killdeers (*Charadrius vociferus*) and red crossbill (*Loxia curvirostra*). Bald eagles (*Haliaeetus leucocephalus*) are discussed in the threatened and endangered species section below.

Some bird species that are considered rare or sensitive may occur in the project vicinity. The black-backed woodpecker (*Picoides arcticus*) is primarily found in conifers, particularly spruce-fir forests or mixed lodgepole pine/spruce-fir forests. This bird is rarely observed in the West Entrance area because the habitat is almost exclusively lodgepole pine. The three-toed woodpecker (*Picoides tridactylus*) is more frequently found in the area, because the habitat required by this species includes primarily coniferous forests, especially disturbed sites with dead or dying trees. The trumpeter swan (*Olor buccinator*) is found in the Madison River, primarily from mid-October through February. One previously active swan nest was seven miles east, near Seven Mile Bridge, but is no longer active (McEneaney 2002; McEneaney 1988).

#### Threatened and Endangered Species

There are three threatened animal species present in Yellowstone: the bald eagle, grizzly bear, and Canada lynx. Gray wolves are designated as an experimental, non-essential population with the greater Yellowstone ecosystem (GYE). Within national parks, though, experimental populations must be treated as threatened species.

#### *Grizzly Bears*

Grizzly bears in Yellowstone National Park have been protected as a Threatened Species under the Endangered Species Act since 1975. In 1983 the Interagency Grizzly Bear Committee (IGBC) was formed to ensure that the six ecosystems identified as grizzly bear recovery areas in the contiguous 48 states were managed in ways that would help grizzly bear recovery. The *Grizzly Bear Recovery Plan* (USFWS 1993) guides the recovery effort.

The greater Yellowstone grizzly bear population is the second largest of the recovery populations and is estimated to have a minimum of 416 bears. Grizzly bears range over 34,416 km<sup>2</sup> (8,504,345 acres) within the Greater Yellowstone Ecosystem; approximately 26 percent of this range (2.2 million acres) is within YNP. Yellowstone's bear management program is directed toward preserving and maintaining the grizzly bear population as part of the park's native fauna, while providing for visitor safety. Recovery and management of the grizzly bear is of the highest priority.

Grizzly bear foraging habits vary seasonally and annually. Upon emergence from hibernation, grizzlies feed primarily on winter-killed ungulates, and some seek out the Madison River valley for such carcasses. Carcasses give way to spawning trout and newborn elk calves in late

spring. As spring progresses into summer, the bears forage on roots, bulbs, and tender plants more, while berries become an important food source in late summer. Army cutworm moths, pocket gophers, and other invertebrates supplement their summer diet. Whitebark pine nuts are an important autumn food source in the years the trees bear cones, about twice or thrice per decade (Mattson and Jonkel 1989). Grizzlies are opportunistic; in the years of low whitebark pinenut production or low carcass availability, they will seek out other (usually lower-quality) foods. Such years may bring grizzlies more into conflict with humans.

Roads within or adjacent to bear habitat can affect bear populations, both directly and indirectly. Direct effects include road-killed bears and loss of habitat to paving. Indirect effects include reduction of habitat effectiveness due to human-caused bear displacement from habitat adjacent to road corridors. Roads may also indirectly affect bears if they habituate to humans or through other behavior modifications. Construction activities and their noise and disturbance may additionally displace bears from otherwise good habitat. Researchers have documented human-caused bear displacement from habitat near recreational developments (Mattson and Henry 1987, Reinhart and Mattson 1990), roads (Green and Mattson 1988, Craighead et al. 1995), backcountry campsites (Gunther 1990), and recreational trails in nonforested areas (Gunther 1990). Bears generally exhibit the strongest avoidance of occupied front-country human developments (Mattson 1990).

Based on vegetation cover types, the area within 3 km of the West Entrance is primarily low quality bear habitat during spring, and moderate quality habitat during the summer and fall (Gunther et al. 1998). From 1984-2002, there were 34 reports of grizzly bear activity within 3 km of the West Entrance, nine of which were within the development area boundary. Gunther et al. (1998) analyzed grizzly bear activity, bear habitat quality, cub production, bear-human conflicts, and bear management actions in all developed areas in the park. The West Entrance developed area ranked below most other park developments in these measures of bear activity.

### *Canada Lynx*

The U.S. Fish and Wildlife Service (USFWS) listed the Canada lynx (*Lynx canadensis*) as a threatened species in 2000. Evidence of lynx in Yellowstone National Park comes from about 216 winter tracking surveys, covering 1,043 total miles, conducted during the last three winters and from historic sightings. Only three sightings have been recorded in the last three years parkwide, none within three miles of the entrance. There are, in fact, no reliable records of lynx ever having been sighted in that three-mile zone. The National Park Service has seven records of unknown reliability of lynx sign having been seen in the West Entrance or West Boundary areas, but only one of these sightings was recorded within five miles of the entrance. There are two lynx sightings of unknown reliability recorded by historical (1887-1998) records within the greater Madison Junction area; both sightings were within three miles of Madison Junction, in the Mesa Pit area (Potter 2003, Murphy 2002). The project area contains marginal habitat for lynx, which do not occur in the area at this time. The entire project area is on sandy rhyolitic soils that support a mature, open, dry lodgepole pine forest with few Engelmann spruce or subalpine fir. Snowshoe hares, the preferred lynx prey, are rarely sighted in the West Entrance area.

Using mapped coverages of vegetative habitat types from the Yellowstone and Gallatin National Forest databases, National Park Service staff completed a preliminary analysis of primary and secondary lynx habitat in the West Entrance area, per guidelines in the Lynx Conservation and Assessment Strategy (LCAS, Ruediger et al. 2000). The proposed project occurs within a 5<sup>th</sup>-order, 123-mi<sup>2</sup> (square miles) hydrologic unit (HUC) that includes acreage both inside (110 mi<sup>2</sup>, 89% of HUC) and outside (13 mi<sup>2</sup>, 11%) the park. Primary lynx habitat totals 8.8 mi<sup>2</sup> (7% of HUC), with 0.2 mi<sup>2</sup> (0.2 % of HUC) inside and 8.6 square miles (7% of HUC) outside the park. Secondary lynx habitat in YNP totals one square mile (0.8% of HUC). Due to low coverage of primary lynx habitat (i.e., less than 20%), this HUC was not identified as a Lynx Analysis Unit (LAU, Ruediger et al. 2000). Data on secondary habitat outside the park was unavailable. Guidelines used to identify lynx habitat in YNP were more conservative (i.e., tended to identify less primary habitat) than those used by Gallatin Forest personnel, but differences were not critical because very little lynx habitat was identified by both sets of guidelines.

### *Bald Eagle*

Bald eagles are rarely found in the West Entrance area, although they are often seen along the Madison River to the east and north of the project area. The abundant fish in the area's rivers combined with the presence of winter-killed animals attract eagles year-round. However, the river does not approach the project area closer than a mile at any point, and no active nests are known to occur within 1 kilometer (0.6 miles) of the project site (McEneaney 2002). The bald eagle management plan for the GYE has achieved the goals set for establishing a stable population in the park.

### *Gray Wolf*

Wolves in the Yellowstone area are designated as an experimental population, and therefore no areas are designated as critical habitat for them (USFWS 1994). Human-caused mortality and availability of prey are the two most limiting factors for wolf populations (Mech 1970). To date most human-caused mortality of wolves in the Greater Yellowstone Area has come from management removals (mostly related to livestock depredations), illegal kills (from poaching), and by collisions with vehicles (including several on U.S. 191 north of West Yellowstone). Within Yellowstone National Park, there has been no mortality of wolves due to either management removals or illegal kills. Prey species for wolves are considered abundant in the park, with elk being the primary prey species.

As of February 2003, about 273 wolves live in the Greater Yellowstone Area, with 148 wolves in 14 packs in Yellowstone itself. Wolf populations in the park are growing slowly or have reached a plateau; the population is nearing carrying capacity. At least one member of each pack is radio-collared, allowing park and USFWS personnel to monitor the movements of all packs. Wolves travel widely and do not appear to be disturbed by human presence, except during denning. Wolf pups are generally born in late March to May. The U.S. Fish and Wildlife Service has begun the process of removing the wolf from the Endangered Species List; this process may be complete by 2005.

Telemetry surveys during the last five years show that wolves have never been located within two miles of the West Entrance. Wolves already avoid the area due to its proximity to West Yellowstone; the area is not vital wolf habitat (Smith 2002).

#### *Candidate or Proposed Species*

Fluvial Arctic grayling (*Thymallus arcticus*) are a candidate species for federal threatened and endangered status. Based on historical information and angler reports there may be some remnant fluvial grayling in the Madison River. This project will not affect the river or its resident fish.

#### Air Quality

Air quality and visibility are generally excellent in Yellowstone, which is a mandatory Class 1 area where air quality degradation is unacceptable under the Clean Air Act of 1977. Acid precipitation is monitored at Tower Ranger Station, and ozone, sulfur oxides, and fine particulates are monitored at Lake Ranger Station.

The West Entrance, in winter, is an exception to Yellowstone's generally excellent air quality. An average of 558 snowmobiles enter the park per day at this entrance; more than 1,000 entered via this entrance on the busiest days in the past. Most of such machines were powered by 2-cycle engines, which mixed oil with gasoline for combustion, an inherently dirty process. Large amounts of carbon monoxide (CO), particulates, and volatile organic compounds were emitted by such snowmobiles, and the sheer number of snowmobiles at this entrance led to significant accumulations of some of these pollutants. Employees staffing the gate have complained about headaches and nausea caused by the air pollutants. Over 1,200 visitors wrote the NPS in 1993 and 1994 to complain about air pollution and smells associated with snowmobiles.

The worst air pollution was found on calm, clear (or foggy) mornings, when air inversions trapped pollutants near the ground, preventing them from dispersing into the atmosphere. Such mornings often feature calm winds, and are usually very cold. Snowmobiles, like most engines, emit higher amounts of pollutants when their engines are cold, and most snowmobiles entering at the gate are cold, having just been started for the day in West Yellowstone. This is therefore another contributing factor to the problem. The lack of air movement under the canopy may collect pollutants as well.

The State of Montana began monitoring carbon monoxide levels at the entrance in 1998, and has found significant levels of CO, but no violations of the Clean Air Act. In 2002 the NPS inspected and updated the positive air ventilation system in the kiosks, which has improved the air quality for rangers in them. Still, rangers working outside them occasionally wear respirators to filter out the air pollution.

Park staff and merchants in West Yellowstone have attempted to reduce the air pollution in several ways. Entrance station staff installed an express lane to expedite entry of snowmobilers already possessing entrance passes, and town merchants began selling such passes a few years ago. All winter visitors must purchase their passes in town, thereby reducing the amount of time snowmobiles are idling at the entrance. Some merchants also

sell ethanol, which slightly reduces emissions. Finally, under the *Winter Use Plans: Final Supplement Environmental Impact Statement*, the National Park Service will restrict park entry to only four-cycle snowmobiles in December 2004. Such snowmobiles emit significantly reduced quantities of most air pollutants.

### Visual Quality

Visual quality affects both visitor enjoyment and perception of Yellowstone. The entrance station at West Yellowstone is the first building most visitors see as they enter the park. The existing entrance station is Modernist in style, as were most structures built as part of the Mission 66 program. The West Entrance in particular is a late Modernist attempt to incorporate the traditional materials used in Yellowstone National Park with the Modern design. For example, monumental scale logs support the A-frame canopy, which was covered with wood shingles. The design was a departure from the other more traditional log building designs that had been followed at this entrance since the early 1900s. Still, the canopy provides necessary shelter from the strong summer sun, prevailing southwest winds, rain, and snow. Massive in appearance, it clearly announces that one is entering the park.

### Soundscape Management

Sound quality and noise also affect visitor enjoyment and perception of Yellowstone. The park is generally a quiet place where visitors may escape the noise and bustle of modern American cities.

The West Entrance is again a departure from the norm for Yellowstone. Because it is the busiest entrance, hundreds or thousands of vehicles enter this entrance daily in the summer, with hundreds entering on any winter day. Loud and/or accelerating vehicles create a noisy environment, partly because the large roof and tight spaces present at the entrance station amplify and echo any noise.

Still, most of this noise is confined at the entrance, traveling very little out of the immediate area. Entrance station noise is not usually audible in the nearby housing area, or at the closest point of the Madison River in the summer. Winter conditions are different, however, with snowmobile noise being audible outside of the immediate area, although some snowmobile noise comes from outside the park boundary.

### Lightscape Management

The National Park Service strives to preserve the natural ambient landscapes, which are natural resources and values that exist in the absence of human-caused light. The current entrance station has some nighttime lighting, consisting of a few downward-focused area lights, fluorescent lights that illuminate the interior of the roof, a light on the U.S. flag, and lights on the end of each kiosk abutment. Red and green traffic-style lights at each kiosk shine constantly as well. In general, lighting at the entrance is subdued.

### Historic Resources

The National Historic Preservation Act, as amended in 1992 (16 USC 470 *et seq.*), and the National Environmental Policy Act, as well as the National Park Service's Director's Order-28, *Cultural Resource Management Guideline (1994)*, *Management Policies (2001)*, and

Director's Order-12, *Conservation Planning, Environmental Impact Analysis and Decision-making* (2001), require the consideration of impacts on cultural resources listed on, or eligible for listing on, the National Register of Historic Places. The undertakings described in this document are subject to Section 106 of the National Historic Preservation Act, under the terms of the 1995 Servicewide Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. This document will be submitted to the Montana State Historic Preservation Office (SHPO) for review and comment.

Yellowstone's 131-year history leaves us today with a wealth of historic park buildings. Yellowstone has 955 historic buildings and structures on the List of Classified Structures; of these, 371 are listed on the National Register of Historic Places (the National Register), while an additional 320 have been determined eligible for listing. Five buildings have been designated as National Historic Landmarks: the Northeast Entrance Station, the Old Faithful Inn, and the museums at Madison, Norris, and Fishing Bridge.

The West Entrance is historically significant for several reasons: leading architect William C. Muchow designed it; it is one of the few entrance stations built under the Mission 66 program; its design represents to some a pleasing mixture of the Modernist and rustic styles; and it possesses good site integrity. For these reasons, the National Park Service and Montana State Historic Preservation Officer have determined that it is eligible for listing to the National Register.

Railroads expressed special interest in the national parks in the late 1800s because they were the primary means to convey visitors to the remote parks. The Northern Pacific Railroad had extended its rails to Yellowstone's north entrance at Gardiner in 1903, and found that to be profitable. Observing this, the Oregon Short Line (a Union Pacific subsidiary) began constructing a spur line in 1905 from Ashton, Idaho to the park's west boundary. The rails arrived two years later, and West Yellowstone was almost immediately born. A group of entrepreneurs led by Mr. S. P. Eagle applied for and received permission to build the first businesses that catered to tourist needs. The Union Pacific also constructed its depot, a restaurant, men's and women's dormitories, and baggage and freight buildings. Most of these buildings were complete by the late 1920s, and still stand. Today they comprise the Oregon Short Line Historic District in the town of West Yellowstone. The historic district stretches east to the Yellowstone Park boundary where it includes the Union Pacific corner stone landmark.

The West Yellowstone Chamber of Commerce building is within the historic district. Any additions to the building that would be funded by the federal government would have to be compatible not only with the chamber building itself but also with the other buildings in the historic district. Furthermore, additions should meet the approval of the Montana State Historic Preservation Officer.

### **Socioeconomic Resources**

Yellowstone plays a prominent role in the social and economic life of the Greater Yellowstone Area. Gateway communities have developed outside the park's five entrances



— Cody and Jackson in Wyoming, and Cooke City/Silver Gate, Gardiner, and West Yellowstone in Montana. The Montana gateway communities are on the immediate border of the park or within a few miles. The Wyoming gateway communities are an hour's drive or more from the park's boundary. Most gateway communities are relatively small, although both Jackson and Cody have populations of greater than 8,000. West Yellowstone has about 1,200 year-round residents, and Gardiner about 850; the populations of both towns swell in the summer months.

The gateway communities provide food, lodging, medical services, groceries, gasoline, other automotive supplies/services, gifts, souvenirs, and other goods and services to the public. The availability of services varies from community to community. The link between tourism and all the gateway communities is tight; their economic viability depends heavily on the recreation and tourism traffic that is generated by Yellowstone and other public recreation destinations.

West Yellowstone has collected a resort sales tax since the late 1980s; the tax provides insight into the size of the town's economy. Between 1993 and 1999, the town collected between \$1 million and \$1.7 million via the sales tax, indicating an annual economy of greater than \$40 million. Throughout the 1990s sales tax funds increased at an average annual rate of 10%; the annual change varied from +25% to a decrease of 1.6%. Tourist spending in the winter months of December, January, February, and March accounted for approximately 25% of the annual totals (National Park Service 2000). Most West Yellowstone visitors come to the area to tour Yellowstone National Park, thereby passing through the West Entrance. Because Yellowstone lacks sufficient accommodations for all its visitors, many stay overnight in the surrounding communities. West Yellowstone has over 30 motels with at least 1,471 rooms or cabins for rent. The town has an additional seven campgrounds or RV parks with over 300 spaces for campers (West Yellowstone Chamber 2002). With so many motels and campgrounds, summer finds a steady stream of visitors exiting Yellowstone to find accommodations in West, with a corresponding stream of visitors entering in the mornings.

### **Visitor Use and Experience**

Visitor use and economic activities are highly seasonal. June, July, and August are the months of highest use, with 50 percent of the park's visitation arriving in July and August. The shoulder-season months of May and September receive less use, but the volume is still substantial. Use in the winter months is relatively low, accounting for about six percent of the overall visitation, totaling between 113,000 and 140,000 in recent years. Annually 2.8 to 3 million people tour Yellowstone.

Studies done in 1989 and 1992 estimated that 74 to 81 percent of all park visitors came from outside the surrounding states of Idaho, Montana and Wyoming. Seven percent of park visitors are international, with half of them coming from Canada, and Germany contributing the second largest number. About half of the people coming through Yellowstone's entrances are repeat visitors (Littlejohn, Dolsen, and Machlis 1990).

In 2002 the park received 2,983,051 recreational visits. The West Entrance is the busiest entrance, accounting for about 39 percent of park visitors. The South is next busiest, averaging 24%, followed by the North, with 18%, and the East entrance, with 13%. The Northeast Entrance is slowest, with about 6% of park visitors entering there.

For some visitors, the entrance station is the only point of contact with a ranger; for almost all visitors, it is the first, and perhaps most important, contact. The volume of entering traffic at West means that most visitors spend less than two minutes with a ranger upon first entering, and far less upon re-entering the park. Meanwhile, visitors may spend 5 or 10 minutes waiting in line to enter the park—much more than they actually spend with a ranger.

## **Overview**

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental effects or consequences of a proposed federal action and any adverse effects that cannot be avoided should the proposed action be implemented. In this instance, the proposed federal action involves building a new West Entrance and expanding the West Yellowstone Chamber of Commerce, as described in this document.

The intent of this section is to provide an analytical basis for comparison of the alternatives and the impacts that would result from implementation of them. Impact topics have been selected for the analysis based on the potential for effects on important resources and other key issues identified during planning. This section is based on scientific and analytical review of information collected by the National Park Service and provided by other agencies. Expected impacts are described for all three alternatives.

Regulatory guidelines for implementation of NEPA require an analysis of the cumulative effects of a proposed action as defined in 40 CFR 1508. These guidelines state that a cumulative effect is "the impact on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the non-action and proposed action alternatives. The analysis of the cumulative effects includes a discussion of current development plans within Yellowstone National Park and information about development plans for the lands surrounding the park within the Yellowstone ecosystem. Development plans in the immediate project area, west-central Yellowstone National Park, are primary factors in the analysis of cumulative impacts.

Although numerous construction and maintenance projects are planned for the Greater Yellowstone Area during the next 20+ years, the emphasis of these projects is to replace, repair, and rehabilitate existing facilities that are approaching the end of their useful service life. Where new facilities are needed, they would be concentrated in and adjacent to existing developed areas to minimize the creation of new, isolated developments. Although some commitment of previously undisturbed resources is inevitable, as are some adverse cumulative effects, many of the project efforts to be undertaken involve the removal of existing development and the revegetation of other human activity scars.

The following analysis of impacts was based upon whether the impacts would be:

- **beneficial** (a positive change in the condition of the resource, or a change that moves a resource toward its desired condition);
- **adverse** (a negative change in the condition of the resource, or a change that moves a resource away from its desired condition);
- **direct** (an effect that is caused by an action and occurs at the same time and place);
- **indirect** (an effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable);
- **short-term** (an effect which in a short amount of time would no longer be detectable, as a resource returns to its pre-disturbance condition; generally the duration of this project, which is expected to be 2 years or less);
- **long-term** (a change in a resource or its condition that does not return to pre-disturbance levels and for all practical purposes is considered permanent).

### Impairment

In addition to determining the environmental consequences of the preferred and other alternatives, the National Park Service's *Management Policies 2001* (NPS 2001) requires 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 Organic Act (39 Stat. 535; U.S.C. Title 16 et seq.) and reaffirmed by the General Authorities Act (as amended, 84 Stat. 825), begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management 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 National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it affects 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.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park.

**Table 2: Summary of Potential Impacts of Alternatives**

<b>Impact Topic</b>	<b>Alternative 1— No Action</b>	<b>Alternative 2—2,300 Foot Option</b>	<b>Alternative 3—1,500 Foot Option</b>
<b>Geology and Soils</b>	Negligible impacts	There would be minor, long-term impacts to about 0.1 acres of previously disturbed soil and temporary disturbance to 5.3 additional acres.	There would be temporary disturbance to 3.9 acres of previously disturbed soil. Effects would be minor, localized, and long-term.
<b>Vegetation</b>	Negligible impacts	There would be minor, long-term impacts to about 0.1 acres of previously disturbed vegetation and temporary disturbance to 5.3 additional acres.	There would be temporary disturbance to 3.9 acres of previously disturbed vegetation. Effects would be minor and localized.
<b>Wildlife</b>	Negligible impacts	Some minor localized and short-term displacement of wildlife during construction could occur.	Some minor localized and short-term displacement of wildlife during construction could occur.
<b>Threatened and Endangered (“T &amp; E”) Species</b>	Negligible impacts—no effects on T & E Species	This alternative would have minor impacts upon and may affect, but is not likely to adversely affect bald eagles, grizzly bears, or gray wolves. Negligible/no effects on Canada lynx.	This alternative would have minor impacts upon and may affect, but is not likely to adversely affect bald eagles, grizzly bears, or gray wolves. Negligible/no effects on Canada lynx.
<b>Air Quality</b>	Continued minor air quality problems	This alternative would have long-term, direct, minor improvements in local air quality through installation of fans, traffic expediting, and alignment of employee access road with prevailing winds. Short-term adverse effects would be temporary and minor.	This alternative would have long-term direct improvements in local air quality (though less than Alt. 2) through installation of fans and some traffic expediting. Short-term adverse effects would be temporary and minor.
<b>Visual Quality</b>	Negligible impacts.	This alternative would have a mixture of beneficial and adverse, minor effects. Canopy appearance would improve; new administration building and contact station enlargement would feature log and stone construction; four lanes of queuing traffic would detract from appearance.	This alternative would have a mixture of beneficial and adverse, minor effects. Canopy appearance would improve; new administration building and contact station enlargement would feature log and stone construction; four lanes of queuing traffic would detract from appearance.

Table 2, Continued

Impact Topic	Alternative 1— No Action	Alternative 2—2,300 Foot Option	Alternative 3—1,500 Foot Option
<b>Soundscape Management</b>	Continued minor noise generation	This alternative would have long-term, minor reduction in traffic noise due to sound baffles installed in canopy and traffic expediting, and short-term adverse impacts during the construction phase.	This alternative would have long-term, minor reduction in traffic noise due to sound baffles installed in canopy and traffic expediting, and short-term adverse impacts during the construction phase.
<b>Lightscape Management</b>	Negligible impacts	There would be minor effects on the night sky resource due to increased but full cutoff lighting at new Administration building.	There would be minor effects on the night sky resource due to increased but full cutoff lighting at new Administration building.
<b>Historic Resources</b>	Long-term minor, direct and adverse impacts due to building deterioration.	Demolition of historic West Entrance would mean historic properties are adversely affected, but mitigated by reuse of canopy. Contact station would blend with Oregon Shortline District better. Effects would be long-term, moderate, and adverse, but mitigated.	Demolition of historic West Entrance would mean historic properties are adversely affected, but mitigated by reuse of canopy and retention in its existing site. Contact station would blend with Oregon Shortline District better. Effects would be long-term, moderate, and adverse, but mitigated.
<b>Socioeconomic Resources</b>	Continued negligible impacts on businesses nearest the entrance	Short and long-term, minor stimulation to local economy through construction and through reduction of congestion and delays.	Short-term, minor stimulation to local economy through construction and through some reduction of congestion and delays. Negligible long-term effects.
<b>Visitor Use and Experience</b>	Continued minor frustrations, delays, and safety problems	Long term minor benefits to visitor experience through improved traffic flow and reduced air and noise pollution. Short-term but minor dust and delay problems.	Long term minor benefits to visitor experience through slightly improved traffic flow and somewhat reduced air and noise pollution. Short-term but minor dust, delay, and confusion problems.

## ***Geology and Soils***

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to soils were derived from the available soils information (NRCS) and park staff's past observations of the effects on soils from both visitor use and construction activities. The thresholds of change for the intensity of impacts to soils are defined as follows:

- Negligible: the impact is at the lowest levels of detection and causes very little or no physical disturbance/removal, compaction, or unnatural erosion, when compared with current conditions.
- Minor: the impact is slight but detectable in some areas, with few perceptible effects of physical disturbance/removal, compaction, or unnatural erosion of soils.
- Moderate: the impact is readily apparent in some areas and has measurable effects of physical disturbance/removal, compaction, or unnatural erosion of soils.
- Major: the impact is readily apparent in several areas and has severe effects of physical disturbance/removal, compaction, or unnatural erosion of soils.
- Impairment: a major, adverse impact to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

### Impacts of Alternative 1 on Soils

#### *Impact Analysis*

Operation of the West Entrance would continue under this alternative. Visitors would occasionally walk across bare soils. Soil disturbance, though, would not occur, except for minor maintenance needs.

### *Cumulative Impacts*

Construction projects will occur in the western portion of Yellowstone National Park and in West Yellowstone, disturbing various amounts of soils and causing minor amounts of erosion. Similarly, visitors will travel off-trail to some extent. When added to such erosive events, continued operation of the West Entrance would cause a negligible impact to soils.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to soils, this alternative would contribute a negligible amount of soil loss to the cumulative scenario. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

### Impacts of Alternative 2 on Soils

#### *Impact Analysis*

A total of about 5.4 acres of soils would be disturbed for construction of the entrance at this site, including 2.7 acres of previously disturbed soils. Only 0.1 acres would be permanently disturbed. Effects would be direct, minor, localized, and long-term. Any topsoil hauled into the site would be certified as weed free to avoid colonization by exotic plants. Excavated material would be stored and transported out of the park, or reused on site. Construction equipment would be thoroughly pressure washed and checked for cleanliness before entering the site, again to avoid transporting exotic species seeds into the park.

Enlarging the Chamber of Commerce building would disturb approximately 5,000 square feet of soil that is currently completely covered in either asphalt or landscaping.

### *Cumulative Impacts*

Construction projects will occur in the western portion of Yellowstone National Park and in West Yellowstone, disturbing various amounts of soils and causing minor amounts of erosion. Similarly, visitors will travel off-trail to some extent. When added to such erosive events, construction of a new West Entrance would cause a minor impact to soils.

### *Conclusion*

The effects of Alternative 2 on soils would be direct, local, long-term, and minor. As per the definition provided under Alternative 1 above, this alternative would not impair Yellowstone's geology or soils.



## Impacts of Alternative 3 on Soils

### *Impact Analysis*

A total of 3.9 acres of soils would be disturbed for this proposal, and an equal amount of acreage would be restored and revegetated. Any topsoil hauled into the site would be certified as weed free to avoid colonization by exotic plants. Excavated material would be stored and transported out of the park, or reused on site. Construction equipment would be thoroughly pressure washed and checked for cleanliness before entering the site, again to avoid transporting exotic species seeds into the park. This proposal would disturb less soil than Alternative 2, but more than Alternative 1. Similarly, effects would be minor, adverse, localized, and long-term.

### *Cumulative Impacts*

Construction projects will occur in the western portion of Yellowstone National Park and in West Yellowstone, disturbing various amounts of soils and causing minor amounts of erosion. Similarly, visitors will travel off-trail to some extent. When added to such erosive events, construction of a new West Entrance would cause a minor impact to soils.

### *Conclusion*

Effects would be direct, minor, local, and long-term, and no impairment would result.

## **Vegetation**

### Methodology and Intensity Thresholds

Park staff performed an on-site survey for rare plants and wetlands, and found none of either within the proposed project area. Additionally, all available information on park plants was used to analyze the effects of the alternatives on park vegetation and rare plants. The entire project area is characterized by open lodgepole pine forest, with small amounts of herbaceous plant cover on the forest floor. Such forest has a low biodiversity and is ubiquitous in the area.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be short-term, on a small scale, and no species of special concern would be affected.
- Minor: The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective.
- Moderate: The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population in the long-

term and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected.

Major: The alternative would have a considerable long-term effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

## Impacts of Alternative 1 on Vegetation

### *Impact Analysis*

Continued operation of the West Entrance would have a negligible effect on vegetation. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur. A very small amount of trampling might occur as visitors travel off the road to view wildlife, but such incidents are unusual, given the rare occurrence of animals at this entrance. Effects from continued entrance operation on vegetation would be negligible.

### *Cumulative Impacts*

As with the effects on soils, construction projects in the West Yellowstone area and western part of Yellowstone will continue. These projects will have a varying effect on plants and vegetation. Within Yellowstone, all projects must undergo the rare plant and wetland inventory that was done at this project's site. All Yellowstone projects must avoid moderate or major impacts on rare plants, and must mitigate wetland losses. Because Alternative 1 would not disturb vegetation, it would have a negligible effect on vegetation.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to vegetation, this alternative would cause negligible effects on vegetation. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Vegetation

### *Impact Analysis*

Approximately 5.4 acres of vegetation would be temporarily lost to the construction of the entrance station at this site. The majority of this vegetation is open lodgepole pine forest, which is ubiquitous in this area. Because 5.3 acres would be revegetated in the area, including the existing entrance station site (in accordance with the Yellowstone policy on vegetation management for construction activities described in Appendix 1), only 0.1 acres

would be disturbed on a long-term basis. Native plants would be used for revegetation, and would reflect plants typical of the area. Park staff would monitor the site for exotic species, and take control actions when necessary. Effects would be minor, both short- and long-term, localized, and direct.

Enlarging the Chamber Building would cause no impacts on park vegetation or on native vegetation outside the park, as the building is nearly surrounded by pavement.

#### *Cumulative Impacts*

Construction projects in the West Yellowstone area and western part of Yellowstone will continue. These projects will have a varying effect on plants and vegetation. Within Yellowstone, all projects must undergo the rare plant and wetland inventory that was done at this project's site. All Yellowstone projects must avoid moderate or major impacts on rare plants, and must mitigate wetland losses. Given the small acreage that would be permanently disturbed by this project, this alternative would have a minor effect on vegetation and soils.

#### *Conclusion*

Impacts on vegetation would be minor, direct, local, and both short- and long-term. According to the criteria specified under Alternative 1, no impairment to vegetation would result as a result of this alternative.

### Impacts of Alternative 3 on Vegetation

#### *Impact Analysis*

Approximately 3.9 acres of vegetation would be disturbed or cleared in the construction of the office building and widened entrance lanes. However, an equal amount of acreage would be restored and revegetated. All restored acreage would be revegetated in accordance with park policy, using native plants typical of the area (see Appendix 1). Park staff would monitor the site for exotic species, and take control actions when necessary. Because the acreage disturbed by this project is small, and because an equal amount would be revegetated with native plants, this project would not be expected to have more than minor, localized, and short-term impacts on park vegetation. This alternative would disturb less vegetation than Alternative 2, but more than Alternative 1.

#### *Cumulative Impacts*

Because the acreage disturbed by this project is small, and because an equal amount would be revegetated with native plants, this project would not be expected to have any cumulative impacts on park vegetation.

#### *Conclusion*

Impacts on vegetation would be minor, localized, direct, and short-term; no impairment to Yellowstone's vegetation would result due to this alternative.

## **Wildlife**

### Methodology and Intensity Thresholds

All available information on known wildlife was compiled. Where possible, map locations of sensitive species sightings in the West Entrance-Madison River area were prepared. Predictions about short- and long-term site impacts were based on existing monitoring data from Yellowstone National Park. Note that threatened and endangered species are considered separately under the impact topic immediately following wildlife.

The thresholds of change for the intensity of impacts to wildlife are defined as follows:

- Negligible: Wildlife would not be affected or the effects would be at or below the level of detection, would be short-term, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population.
- Minor: Effects to wildlife would be detectable, although the effects would be localized, and would be small and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
- Moderate: Effects to wildlife would be readily detectable, long-term and localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
- Major: Effects to wildlife would be obvious, long-term, and would have substantial consequences to wildlife populations in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

### Impacts of Alternative 1 on Wildlife

#### *Impact Analysis*

Continued operation of the West Entrance would have a negligible effect on wildlife. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur. Wildlife sightings are unusual in the area due to its poor wildlife habitat value and frequent human activity near the entrance and town. Effects from continued entrance operation on wildlife would be negligible.

### *Cumulative Impacts*

Continuing construction projects in the western part of Yellowstone and in West Yellowstone would occur. Each project's effects on wildlife must be evaluated independently and cumulatively. All moderate or major impacts on park wildlife must be mitigated. Current entrance station operation has a negligible effect on park wildlife; continued operation of it would be expected to have a similar effect.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to wildlife, this alternative would have negligible effects on them. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

### Impacts of Alternative 2 on Wildlife

#### *Impact Analysis*

Selection and construction of this alternative would cause minor, direct, localized, and short-term impacts on park wildlife (including birds). The few species that use this area could be temporarily displaced by construction activity and equipment. The NPS expects no increase in wildlife mortalities in this area because all construction activities would be temporary and confined to the immediate project area. No effects on Neotropical migratory birds are expected. As with all Yellowstone construction projects, the NPS would direct the contractor to manage food and garbage so that they are not available to grizzly or black bears. Contractor staff would have to attend bear/food management orientation sessions and abide by the normal bear management guidelines.

### *Cumulative Impacts*

Although a variety of construction projects will continue in Yellowstone and the West Yellowstone area, the majority within the park are replacements of existing roads or structures. All projects must minimize and, if needed, mitigate their effects on wildlife. This project's effects on wildlife are expected to be temporary and minor.

### *Conclusion*

According to the criteria specified under Alternative 1 above, Yellowstone's wildlife would not be impaired as a result of this alternative's choice. Effects on this alternative on wildlife would be direct, temporary, minor, and very localized.

### Impacts of Alternative 3 on Wildlife

#### *Impact Analysis*

Alternative 3's impacts upon wildlife would be identical to those of Alternative 2.

### *Cumulative Impacts*

Alternative 3's cumulative impacts on wildlife would be similar to those of Alternative 2.

### *Conclusion*

Alternative 3's impacts would be direct, short-term, localized, and minor. As with Alternative 2, Yellowstone's wildlife and Neotropical birds would not be impaired as a result of the selection of this alternative.

### ***Threatened and Endangered Species***

#### Methodology and Intensity Thresholds

Yellowstone National Park experts familiar with each of the endangered species present in Yellowstone were consulted for their knowledge and opinion on potential project impacts. These experts consulted past records of endangered species sightings within three miles of the West Entrance, historic records of sightings, and their detailed knowledge of the life habits of the species in question. The thresholds of change for the intensity of impacts to endangered species are defined as follows:

- Negligible: No federally listed species would be affected or its critical habitat, or the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms.
  
- Minor: Impacts would be detectable, but they would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on native species, their habitats, or the natural processes sustaining them. Population numbers, population structure, genetic variability, and other demographic factors for species may have small, short-term changes, but long-term characteristics remain stable and viable. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Key ecosystem processes may have short-term disruptions that would be within natural variation. Sufficient habitat would remain functional to maintain viability of all species. Impacts would be outside of critical reproduction periods for sensitive species. Minor effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species.
  
- Moderate: Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile states; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the park unit. Impacts on native fish and wildlife species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability for short periods of time. Population numbers, population structure, genetic variability, and other demographic factors for species may have short-term changes, but would be expected to rebound to pre-impact

numbers and to remain stable and viable in the long-term. Frequent response to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting short-term population levels. Key ecosystem processes might have short-term disruptions that would be outside natural variation (but would soon return to natural conditions). Sufficient habitat would remain functional to maintain variability of all native fish and wildlife species. Moderate effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species.

- Major:** Impacts on native fish and wildlife species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or to be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Breeding colonies of native species might relocate to other portions of the park. Key ecosystem processes might be disrupted in the long-term or permanently. Loss of habitat may affect the viability of at least some native species. Major effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species or critical habitat.
- Impairment:** Some of the major impacts described above may be an impairment of park resources if their severity, duration, and timing results in the elimination of a native species, significant population declines in a native species, or they precluded the park's ability to meet recovery objectives for listed species. In addition, these adverse, major impacts to park resources and values would:
- contribute to deterioration of the park's wildlife resources and values to the extent that its purpose could not be fulfilled as established in its enabling legislation;
  - affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or
  - affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.

## Impacts of Alternative 1 on Threatened and Endangered Species

### *Impact Analysis*

Continued operation of the West Entrance would result in negligible effects on the four threatened or endangered species (wolves, grizzly bears, lynx, and bald eagles) present in Yellowstone. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur. Sightings of any of the four species are unusual in the area due to its poor wildlife habitat value and frequent human activity near the entrance and town.

### *Cumulative Impacts*

Continuing construction projects in the western part of Yellowstone and in West Yellowstone would occur, but each project's effects on wildlife must be independently and collectively evaluated, and all moderate or major impacts on park endangered species must

be mitigated. The U.S. Fish and Wildlife Service reviews each project to determine whether it would affect the four species. Current entrance station operation has a negligible effect on endangered species; continued operation of it would be expected to have a similar effect.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to threatened or endangered species, this alternative would have negligible effects on them. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

### Impacts of Alternative 2 on Threatened and Endangered Species

#### *Impact Analysis*

Selection of this alternative would have negligible to minor effects on the four threatened or endangered species found in Yellowstone. The effects on each species are separately evaluated below.

**Bald Eagles.** This alternative may affect, but is not likely to adversely affect bald eagles. Construction of the entrance station at this site, and expansion of the Chamber of Commerce building, would have a minor impact on eagles because both developments already exist and are adjacent to or surrounded by larger developed areas. No eagle nests occur within one mile of the area, and bald eagle use is focused on the Madison River corridor, over a mile north of the area. Effects would be localized, short-term, and direct.

**Grizzly Bears.** This alternative may affect, but is not likely to adversely affect grizzly bears. Because the proposed entrance station site is so close to the existing West Entrance developed area, grizzlies already avoid the area. Similarly, the Chamber of Commerce's location within the town of West Yellowstone means that no wild grizzlies occur there. Therefore, this alternative would have minor effects on grizzly bears. Effects would be localized, short-term, and direct.

As mentioned above, all contractor employees would be required to attend and abide by the park's grizzly bear orientation sessions. These sessions focus on proper food and garbage storage, how to avoid disturbing or encountering bears, and how to minimize unavoidable effects or encounters. Food storage and disposal procedures at the new entrance would be similar to those at the current one; such procedures already minimize the potential for bears to obtain food.

**Gray Wolves.** As with eagles and bears, wolves do not use this area, so the project may affect, but is unlikely to adversely affect, them. Wolves do not den in this area. This alternative would have a minor, direct, localized, and short-term effect on gray wolves.



Canada Lynx. This alternative would have no effect on Canada lynx. The West Entrance area does not occur in a Lynx Analysis Unit and few, if any, lynx occur in the area. Because the new buildings are small in size and would occur in close proximity to existing developed areas, movements of lynx that might pass through the area would not be impeded.

#### *Cumulative Impacts*

Continuing construction projects in the western part of Yellowstone and in West Yellowstone would occur, but each project's effects on threatened and endangered species must be independently and collectively evaluated, and all moderate or major impacts on those species must be mitigated. The U.S. Fish and Wildlife Service reviews each project to determine whether it would affect the four species.

This alternative proposes only to replace an existing development with a new one, with a total long-term disturbed land area of only 0.1 acre. Additionally, traffic congestion in the entrance area would be reduced. Finally, none of these four species regularly occur in this part of Yellowstone. Therefore, this alternative may affect, but is unlikely to adversely affect wolves, grizzly bears, and bald eagles, and would not affect lynx.

#### *Conclusion*

Effects of this alternative on the four endangered species present in Yellowstone would be negligible on lynx and minor on grizzly bears, bald eagles, and wolves. Impacts on bears, eagles, and wolves would be direct, but localized and short-term. Pursuant to the impairment provisions listed under Alternative 1, this alternative would not impair any threatened or endangered species found in Yellowstone.

### Impacts of Alternative 3 on Threatened and Endangered Species

#### *Impact Analysis*

Selection of this alternative would have negligible to minor effects on the four endangered species found in Yellowstone. Effects would be identical to those of Alternative 2 above, with the only difference being that effects of Alternative 3 would be slightly less than those of Alternative 2 because less land would be disturbed.

#### *Cumulative Impacts*

The cumulative impacts of Alternative 3 are nearly identical to those of Alternative 2. The main difference is that no additional acreage would be disturbed under this proposal, thereby further reducing the already minor cumulative impacts.

#### *Conclusion*

This alternative would have the same impacts on endangered species as Alternative 2 and would not impair any threatened or endangered species found in Yellowstone.

## ***Air Quality***

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to air quality were derived from the available air quality information and reports on air quality at the West Entrance. Park staff's knowledge of air movements and vehicle emissions in the West Entrance area complemented written information. The thresholds of change for the intensity of impacts to air quality are defined as follows:

- Negligible: No changes would occur or changes in air quality would be below or at the level of detection, and if detected, would have effects that would be considered slight and short-term.
- Minor: Changes in air quality would be measurable, although the changes would be small, short-term, and the effects would be localized. No air quality mitigation measures would be necessary.
- Moderate: Changes in air quality would be measurable, would have consequences, although the effect would be relatively local. Air quality mitigation measures would be necessary and the measures would likely be successful.
- Major: Changes in air quality would be measurable, would have substantial consequences, and be noticed regionally. Air quality mitigation measures would be necessary and the success of the measures could not be guaranteed.
- Impairment: a major, adverse impact to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

### Impacts of Alternative 1 on Air Quality

#### *Impact Analysis*

Continued operation of the West Entrance would cause minor, direct, localized, and long-term impacts on air quality in the park or region. Minor degradation of air quality would result from the collection of vehicle pollutants under the canopy. Idling vehicles in summer (all vehicles in winter must have pre-purchased passes, and therefore do not idle long while awaiting admission) would contribute to air quality degradation at the entrance as well. Further, non-alignment of the service side roads with prevailing wind direction (as Alternative 2 proposes) means that such pollutants are not dispersed as readily as they would be under Alternative 2 if it is chosen. However, no violations of the Clean Air Act's

Class I airshed limits for national parks have ever been recorded at this entrance, although snowmobile emissions on certain days in the past came close. Still, continued operation of the entrance means that air quality would likely suffer minor, localized degradation.

Most of the air pollution at this site comes from the large numbers of snowmobiles entering from West Yellowstone. By the time the NPS finishes construction of the entrance, all snowmobiles entering the park will have four-cycle engines (pursuant to the 2003 *Winter Use Plans: Final Supplement Environmental Impact Statement*), which are significantly cleaner and quieter than current models. By implementing this restriction the NPS expects the winter air quality at this entrance to improve. Other actions by the NPS and West Yellowstone merchants have already reduced the air quality problem here. These include the mandatory pre-purchase of entrance passes in town to avoid idling snowmobile engines at the gate, and widespread use of ethanol and bio-lubricants, both of which somewhat reduce emissions.

### *Cumulative Impacts*

The majority of construction projects in the western part of Yellowstone and West Yellowstone areas have only temporary impacts on air quality. Continued operation of the West Entrance means that some air pollution would occur, although it would be minor and localized in extent.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to air quality, this alternative would have direct, localized, long-term, and minor effects. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Air Quality

### *Impact Analysis*

This alternative would have minor, direct, localized, and short-term adverse impacts on air quality in the West Entrance area, but minor, direct, localized, and beneficial long-term impacts on that air quality. Some dispersed dust and mobile exhaust emissions would come from the truck traffic and equipment usage associated with the project, but such emissions would be temporary and in such small amounts that the park's air quality would not be degraded. Contractor activities would comply with state and federal air quality regulations, and contractors would operate under applicable permits.

As discussed under Alternative 1, the NPS and local merchants have already taken many steps to reduce air pollution at this entrance, and will soon be taking more.

This alternative would attempt to remedy or disperse existing air pollution in several ways. First, the NPS would install four fans under the canopy to disperse air pollutants through a downward draft. Additionally, the ventilation system in the kiosks would improve the positive air flow into them, with fresh air drawn from the south side of the administration building. The addition of a fourth full-service kiosk means that both summer and winter visitors would not have to wait as long to enter the park. Reduced waits translate into reduced emissions. Finally, the new access road constructed to the Yellowstone General Store Warehouse area would align with the prevailing southwest winds, thereby stimulating air movement through the entrance plaza and further dispersing pollutants. These improvements would have minor, beneficial, direct, localized, and long-term effects on air quality and employee health in the West Entrance area.

### *Cumulative Impacts*

Because this alternative would have a long-term beneficial (though minor) benefit on air quality, as detailed above, it would not have adverse cumulative impacts on it.

### *Conclusion*

Collectively, this alternative's actions would not impair the park's air quality, but should instead improve it. While there would be minor, localized, direct, and short-term adverse impacts due to construction dust and fumes, there would be long-term, direct, localized, and minor benefits due to improved traffic flow, air ventilation, and wind dispersal of pollutants.

## Impacts of Alternative 3 on Air Quality

### *Impact Analysis*

Short-term air quality impacts caused by this alternative would be similar to those of Alternative 2; the impacts would be minor, direct, local, and adverse in nature. Long-term impacts would be beneficial, minor, local, and direct.

As with Alternative 2, this alternative would include improvements to the kiosk forced-air ventilation system. The improvements would be the same as those in Alternative 2. Again, the main solution to the air pollution problem will be the restriction to four-cycle snowmobiles in two years.

Because queuing distance and reaction time would remain the same as present, some reentering visitors would be unable to move their vehicles into the express lane. This means that more vehicles would wait in line unnecessarily, slightly adding to the emissions at the entrance that are likely under Alternative 2 (but still less than those existing currently). Also, because the existing road from the Warehouse to the entrance does not align with prevailing winds and would be retained under this alternative, the current wind conditions at the entrance would prevail. Thus pollutants would not be dispersed as well as in Alternative 2. Some emissions, however, would be dispersed by the installation of an additional full-service kiosk and queuing lane, which would serve to reduce overall traffic backup. Further, automobile emissions do not currently violate the Clean Air Act, and would be unlikely to under this alternative. Altogether, emissions are likely to be higher

under this alternative than under Alternative 2, because fewer delays would result if it were chosen and because the new access road (aligned with prevailing winds) to the Yellowstone General Store Warehouse area would not be constructed, but less than those of Alternative 1.

### *Cumulative Impacts*

Alternative 3 would have similar cumulative benefits as Alternative 2, but to a smaller extent. Because this alternative would not expedite traffic flow as much, its positive benefits will be smaller, but still measurable and minor. Therefore, it would have cumulative benefits for Yellowstone's air quality.

### *Conclusion*

As with Alternative 2, this alternative would have minor, direct, localized, and short-term adverse impacts. However, the long-term, direct, local, and minor but beneficial improvements would mean that selection of this alternative would not impair the park's air quality.

## **Visual Quality**

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to visual quality were derived from the available information on viewsheds in the West Entrance area and park staff's past observations of the effects on visual quality from both visitor use and construction activities. The thresholds of change for the intensity of impacts to visual quality are defined as follows:

- Negligible: No changes in landscape visual quality would result, or any such changes would be undetectable to even the experienced observer.
- Minor: Changes in visual quality would be detectable, but would be small, localized, and temporary. Any necessary mitigation measures would be simple and successful.
- Moderate: Effects on visual quality would be readily apparent to the casual observer. Such effects would be long-term but localized. Mitigation measures may be extensive, but would be successful.
- Major: Effects on visual quality would be obvious, long-term, and noticeable throughout the immediate area. Effects would substantially change the visual quality of the park's landscape. Mitigation measures would be extensive, long-term, and of undetermined success.

## Impacts of Alternative 1 on Visual Quality

### *Impact Analysis*

Continued operation of the West Entrance would result in negligible effects on visual quality in that area. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur, and such work has little, if any effect on viewsheds.

### *Cumulative Impacts*

Continuing construction projects in the western part of Yellowstone and in West Yellowstone would occur, but each project's effects on visual quality must be independently and collectively evaluated. The National Park Service fully recognizes the importance of preserving Yellowstone's scenic views.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to visual quality, this alternative would have negligible effects. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Visual Quality

### *Impact Analysis*

This alternative would result in long-term but minor changes in the views along the West Entrance Road. Changes would be both beneficial and adverse, and direct and local.

Reuse of the canopy would improve the views along the Entrance Road because this alternative would add stone veneer abutments to the base of the massive timber supports. New dormers above would also make the canopy appear more rustic. Further, the kiosks would be rebuilt with wood shingle siding to reflect the rustic style common to the park setting. Construction of a new office building would result in long-term changes to the views at the West Entrance, but such changes would be minor and beneficial in nature. The new office building would feature log and stone masonry in its construction to make it blend with the existing buildings.

A large area of pavement would result on both sides of the entrance station if this alternative were chosen. Four lanes would be provided for waiting vehicles, with two lanes extending all the way from the town to the entrance (the current situation). This is slightly more paved area than currently seen at the West Entrance, and may present the appearance to some of an Interstate Highway toll-plaza. However, the same extra lanes and extra kiosk should serve to reduce overall traffic backups, partly mitigating the toll-plaza appearance.

Additions to the Chamber building would attempt to harmonize with the styles of both the existing building and the buildings in the historic district it sits in. Because the Chamber building is a more modern style than the historic buildings near it, the proposed architectural style would attempt to blend elements of both. Specifically, the National Park Service proposes to use cedar board siding and some native stone in the addition (as shown in Figure 5).

### *Cumulative Impacts*

Although a variety of construction projects will continue in Yellowstone and the West Yellowstone area, the majority within the park are replacements of existing roads or structures. All projects must minimize their effects on visual quality. This project's effects on visual quality within the West Entrance area and Yellowstone National Park are expected to be minor.

### *Conclusion*

Alternative 2 would have direct, local, and long-term impacts on the park's visual quality. While architectural changes would improve visual quality in the immediate area, the larger paved queuing area would degrade it. Both changes, though, would be minor in nature. Pursuant to the criteria listed under Alternative 1, this alternative would result in no impairment of visual quality.

## Impacts of Alternative 3 on Visual Quality

### *Impact Analysis*

This alternative would result in long-term, direct, local, but minor changes in the views along the West Entrance Road. The addition of an additional traffic lane on the west side of the entrance would mean a wider road, with a correspondingly greater viewshed. However, the viewshed would not be as great as under Alternative 2, because this proposal would retain the entrance closer to West Yellowstone. Other improvements or changes to the park's visual quality would be the same as those under Alternative 2.

### *Cumulative Impacts*

Cumulative effects of this Alternative would be similar to those of Alternative 2.

### *Conclusion*

Impacts on visual quality under this alternative would be the same as those of Alternative 2, although adverse impacts of an increased viewshed would be smaller than Alternative 2's. Similarly, this alternative would result in no impairment of visual quality.

## ***Soundscape Management***

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to soundscapes were derived from the available soundscape information, much of which has been gathered for the winter use

planning effort, and park staff's past observations of the effects on soundscapes from both visitor use and construction activities. On-site observations, complemented with the experience of West Entrance staff, further assisted the analysis. The thresholds of change for the intensity of impacts to soundscapes are defined as follows:

- Negligible:** In the frontcountry areas, human-caused noise may be present much of the time during daylight hours, but it is rarely audible between sunset and sunrise at distances more than 500 feet from the noise source. When noise is present, it is mostly at low levels. Visitors have opportunities to experience the natural soundscape free from human-caused noise frequently during the day, and almost always between sunset and sunrise.
- In the backcountry areas, natural sounds predominate. Human caused noise is rarely audible at 100 feet or more from the noise source. When noise is present, it is at very low levels and occurs only for short durations in most of the area. Visitors almost always have the opportunity to experience the natural soundscape free from human-caused noise.
- Minor:** In the frontcountry areas, human-caused noise may predominate during daylight hours, but for the majority of the time the noise is at low levels, and is only rarely at greater than medium levels. Human-caused noise is rarely audible between sunset and sunrise at 500 feet or more from the noise source.
- In the backcountry areas, natural sounds usually predominate. Human-caused noise is present only infrequently, and occurs only at low levels and for short durations in most of the area. Visitors have the opportunity to experience the natural soundscape free from human-caused noise most of the time in most of the area. Human-caused noise is rarely audible between sunset and sunrise at 100 feet or more from the noise source.
- Moderate:** In the frontcountry areas, human-caused noise predominates during daylight hours, but it is at medium or lower levels a majority of the time. Localized areas may experience human-caused noise at medium to high levels during half of the daylight hours. Human-caused noise is occasionally audible between sunset and sunrise at 500 feet or more from the noise source.
- In the backcountry areas, human-caused noise is present infrequently to occasionally, at low to medium levels and durations. Portions of the backcountry within a half-mile of the frontcountry often experience human-caused noise at low or medium levels and durations. At distances more than a mile from the nearest road, visitors have the opportunity to experience the natural soundscape free from human-caused noise almost all of the time. Human-caused noise is occasionally audible between sunset and sunrise at 100 feet or more from the noise source.
- Major:** In the frontcountry areas, human-caused noise predominates during daylight hours, and is at greater than medium levels a majority of the time that noise is present. Large areas may experience human-caused noise at medium to high levels during a majority of the daylight hours. Human-caused noise is often audible between sunset and sunrise at 500 feet from the noise source.
- In the backcountry areas, natural sounds commonly are masked by human-caused noise at low or greater levels for extended periods of time. Portions of this area within a half-mile of the frontcountry often experience human-



caused noise at medium levels and durations, and noise levels in these areas occasionally are high. More than a mile from the nearest road, the natural soundscape free from human-caused noise can be experienced less than half the time during the day. Human-caused noise is frequently audible between sunset and sunrise at 100 feet from the noise source.

**Impairment:** In the frontcountry areas, the natural soundscape would be impacted at major levels frequently or for extended periods of time in the majority of the area. Human-caused noise is frequently audible between sunset and sunrise at 500 feet from the noise source. The purpose and mission of the area in the park can not be fulfilled.

## Impacts of Alternative 1 on Soundscapes

### *Impact Analysis*

Continued operation of the West Entrance would cause minor, direct, local, and long-term adverse impacts on soundscapes in the park or region. Congestion of traffic behind the entrance, and noise echoing under the canopy would continue to produce elevated noise levels. Noise would continue to disperse throughout the immediate West Entrance area, although little can be heard beyond that area.

### *Cumulative Impacts*

Continuing construction projects in and around the West Entrance area will slightly elevate noise levels, but most construction projects are temporary in nature, along with their noise.

One of the concerns consistently raised with Yellowstone's winter use is snowmobile noise. The National Park Service plans to restrict snowmobile entry in the winter of 2003-04 to four-cycle snowmobiles, which are somewhat quieter than two-cycle snowmobiles, especially at low speeds or idling. These plans should act to reduce noise creation at the West Entrance, where snowmobiles tend to be moving slowly, even though some echoing from the canopy would continue (as would noise from idling car engines in summer).

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to soundscapes, this alternative would have minor, direct, local, and long-term effects. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Soundscapes

### *Impact Analysis*

Construction of this alternative would result in long-term, direct, minor, local, and beneficial impacts on the park's soundscape, but short-term, direct, minor, local, and adverse impacts on soundscapes. During the construction phase, construction equipment would generate some noise. Such noise, like the traffic noise, would generally stay restricted to the immediate area.

Under this alternative, the canopy would be retrofitted with sound baffles to disseminate noise and echoing. This alternative would also provide an additional lane for entering traffic, which should reduce the amount of time visitors are waiting in line. Therefore, there should be a net reduction of noise produced at the entrance.

### *Cumulative Impacts*

Like most construction projects, some temporary noise creation would result as the construction of the new entrance and contact station enlargement proceeds. Unlike most construction projects, however, this alternative would reduce overall noise creation on a long-term basis. Therefore, this project would have minor, but positive cumulative effects.

### *Conclusion*

Alternative 2 would have minor, direct, local, and short-term adverse noise impacts, but minor, direct, local, and long-term reductions of noise. Pursuant to the criteria specified under Alternative 1, this alternative should act to improve the park's soundscape; impairment would not result.

## Impacts of Alternative 3 on Soundscapes

### *Impact Analysis*

Construction of this alternative would result in direct, local, long-term, minor, and beneficial impacts on the park's soundscape. This alternative would mitigate sound through the installation of sound baffles under the canopy. This alternative would also provide an additional lane for entering traffic, which should reduce the amount of time visitors must wait in line and should mitigate some of the effects deriving from driver confusion and inability to move their vehicles into the correct lanes. Short-term impacts to park soundscapes during the construction phase would be identical to those under Alternative 2.

### *Cumulative Impacts*

As with Alternative 2, this project would have minor, but positive, cumulative impacts.

### *Conclusion*

Impacts of this alternative would be identical to those of Alternative 2 on soundscapes. Rather than impairing park resources, this alternative should act to improve the park's soundscape.

## ***Lightscape Management***

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to lightscapes were derived from the available information regarding lighting and its impact on the night sky. Park staff's past observations of the effects on lightscapes from both visitor use and construction activities supplemented the analysis, as did inspection of the existing entrance and its lighting. The thresholds of change for the intensity of impacts to lightscapes are defined as follows:

- Negligible: No change in nighttime lighting would result, or any changes would be at or below the level of detection.
- Minor: Changes in nighttime lighting would be detectable, but would be small and localized. Mitigation through use of full-cutoff fixtures would be simple and successful.
- Moderate: Changes in nighttime lighting would be readily apparent and long-term, though still localized. Mitigation through extensive use of full-cutoff fixtures would likely be successful.
- Major: Changes in nighttime lighting would be considerable, readily apparent and long-term, and would be noticeable throughout the immediate area. Mitigation measures would be extensive and of undetermined success.

### Impacts of Alternative 1 on Lightscape Management

#### *Impact Analysis*

Continued operation of the West Entrance would have a negligible effect on the night sky resource. The building is equipped with subdued lighting that is generally focused downward, and is generally the minimum necessary for safe operation of the entrance. The canopy, although it has lighting illuminating its underside, tends to capture most of that light (and light from other sources) from escaping above. Because lighting is subdued, but present, continued operation would have a negligible effect on the night sky resource.

### *Cumulative Impacts*

All construction projects in Yellowstone must evaluate the impact of the proposed project upon the night sky resource. General Electric (GE) recently awarded Yellowstone National Park a grant to identify and replace light fixtures that emit excessive nighttime light (i.e. are not full cutoff). Yellowstone is among the top ten national parks with the darkest skies. Constant evaluation of lighting, along with GE's grant, will enable Yellowstone to continue protecting its increasingly valuable night sky resource. If this alternative is chosen, lighting at the entrance would be evaluated to determine if it is the minimum necessary.

### *Conclusion*

When combined with other past, present, and foreseeable future actions that would result in impacts to lightscape management, this alternative would have negligible effects. Because there would be no adverse impacts to a resource or value 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 (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Lightscape Management

### *Impact Analysis*

Lighting at the new entrance station would have a direct, local, long-term, and minor effect on the night sky resource. As with the current entrance station, lighting at the new entrance station would be subdued and full cut-off (downward-pointing). Lighting on the relocated canopy would be similar to that on the existing canopy. The office building would add a small amount of lighting to the West Entrance area, but such lighting would be full cut-off as well.

### *Cumulative Impacts*

As discussed under Alternative 1, all Yellowstone redevelopment or development projects must use the minimum lighting necessary for safe operation, including full cut-off lighting where possible. Because this project would be no exception, it would have only minor effects on preservation of the night sky resource in Yellowstone.

### *Conclusion*

Alternative 2 would have minor, local, direct, and long-term impacts on the night-sky resource. Pursuant to the criteria specified under Alternative 1, there would be no impairment of the park's lightscape under this alternative.

## Impacts of Alternative 3 on Lightscape Management

### *Impact Analysis*

Lighting at the entrance would remain the same as it is now, with the exception of the additional office building. Lighting at the new office building would be subdued and full-

cutoff. There would be direct, local, long-term, and minor impacts and no impairment of the park's lightscape under this alternative.

### *Cumulative Impacts*

These would be identical to those under Alternative 2.

### *Conclusion*

This alternative would have the same impacts as Alternative 2.

## ***Historic Resources***

### Methodology and Intensity Thresholds

In order for a historic structure to be eligible for the National Register of Historic Places it must meet one or more of the following criteria of significance: A) associated with events that have made a significant contribution to the broad patterns of our history; B) associated with the lives of persons significant in our past; C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; D) have 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, association (*National Register Bulletins: Guidelines for Evaluating and Registering Archeological Properties; How to Apply the National Register Criteria for Evaluation*).

For purposes of analyzing potential impacts to historic structures/buildings, the thresholds of change for the 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 or historic structures. For purposes of Section 106 of the National Historic Preservation Act (hereafter "Section 106"), the determination of effect would be *no adverse effect*.

Minor: Adverse impact - disturbance of a site(s) results in little, if any, loss of significance or integrity and the National Register eligibility of the site(s) is unaffected. For purposes of Section 106, the determination of effect would be *no adverse effect*. Mitigation of adverse effects would preserve the National Register eligibility.

Beneficial impact – maintenance and preservation of a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate: Adverse impact - disturbance of a site(s) diminishes the significance or integrity of the site(s), and may jeopardize the site's National Register eligibility. If eligibility is jeopardized, adequate mitigation measures are included, such as Historic American Building Survey (HABS) level photography, reuse of portions of the historic structure, and/or design of the new structure to preserve elements of form and function of the historic structure. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial impact – stabilization of a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: Adverse impact – disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it is no longer eligible to be listed in the National Register, and mitigation measures are unlikely to be adequate. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial impact – active intervention to preserve a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

Impairment: A major, adverse impact to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Saguaro National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

## Impacts of Alternative 1 on Historic Resources

### *Impact Analysis*

Continued operation of the West Entrance would preserve this historic structure and its function. Over time the condition of the building would be expected to deteriorate, and major repairs would eventually be needed. Thus, there would be local, long-term, minor, direct and adverse impacts under this alternative.

### *Cumulative Impacts*

As visitor use of Yellowstone increases, more and more recreationists will use public lands. Increasing visitation to these lands could result in a greater occurrence of cultural sites being damaged. Yellowstone has recorded damage at many historic sites. Adding to this deterioration are the effects of time and weathering on historic resources that are not maintained regularly. The cumulative impact of Alternative A, when combined with other past, present, and foreseeable future actions, would be minor, as long-term deterioration in the West Entrance structure would continue.

### *Conclusion*

Regional population pressures and increasing visitation in public lands would increase the chance of the discovery and damage of cultural sites. The effects of time and weathering, along with lack of ongoing maintenance, would result in continued slow deterioration of the West Entrance structure. The cumulative effect of this alternative, when combined with other past, present, and foreseeable future actions, is expected to be local, long-term, minor, direct and adverse. Because there would be no adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Saguaro National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

### Impacts of Alternative 2 on Historic Resources

#### *Impact Analysis*

Destruction of the existing entrance station means that the West Entrance would no longer be eligible for listing to the National Register of Historic Places, but mitigation of the destruction would be accomplished through several means (detailed below). This would constitute a moderate, adverse, long-term, local, and direct effect. For purposes of Section 106, the determination of effect would be *adverse effect*.

Mitigation of destruction of the West Entrance would occur. First, the element of the existing entrance station that most contributes to its historic character is the canopy. Such canopies over entrance stations are uncommon in the national park system. Under this alternative, the canopy would be dismantled carefully, moved to the new site, and reassembled, replacing any damaged or rotted members and cleaning those that would be reused. The canopy would be reassembled over the entrance lanes and kiosks in a configuration similar to the present one. Architectural improvements would be made at the new entrance that would alter the Modernist appearance of the current entrance. Specifically, stone veneer would be added to the bare concrete bases of the massive timber supports, and the existing modernist, Plexiglas kiosks would be replaced with new kiosks featuring wooden shingle siding that match the canopy and new office building. Although the entrance's appearance would change somewhat, much of its historic integrity and purpose would be preserved through retention of its current function. Further mitigation would occur through HABS-level photography of the existing entrance station and preservation of the pre- and post-construction plans in the Historic American Building Survey in Washington, DC, the Montana State Historic Preservation Office, and the Yellowstone National Park Archives. Additionally, the new building design would meet the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties.

Expanding the Chamber of Commerce would be done in a manner harmonious with the historic buildings in the Oregon Short Line Historic District. The addition and retrofit to the contact station would help the building appropriately match the historic buildings to which it is adjacent.

### *Cumulative Impacts*

Loss of historic structures, due to a variety of causes, continues in the Yellowstone area. This project would contribute to that loss, although this project would mitigate that loss in several ways. Replacement of an existing historic, but deficient entrance station with a new sufficient station would, to some extent, mitigate the historic loss. Thus, the cumulative effects of this project would be moderate.

### *Conclusion*

Alternative 2 would result in moderate, direct, local, and long-term adverse impacts upon the historic resources of the West Entrance. Pursuant to the criteria specified under Alternative 1, and with the mitigating measures discussed above, any impairment of historic resources would be avoided.

### Impacts of Alternative 3 on Historic Resources

#### *Impact Analysis*

As with Alternative 2, destruction of the historic West Entrance would mean that historic properties are adversely affected—a moderate impact because adequate mitigation of these effects would occur. Selection of this alternative would result in some preservation of the existing historic entrance station. While the kiosks and office building would be demolished, the canopy would be preserved. However, the addition of the dormers and fans, and replacement of the kiosks would result in significant alteration to the historic nature of the entrance. Therefore, the Montana SHPO has indicated such alterations would result in an adverse effect finding on the historic West Entrance. Mitigation of this would be accomplished through HABS-level photography and retention of the canopy structure, which is clearly the feature most contributing to the historic nature of the entrance. Reuse of the canopy at its existing site would further mitigate the adverse effect. The HABS photographs would be stored with the Historic American Building Survey in Washington, D.C., the Montana State Historic Preservation Office, and the Yellowstone National Park Archives. Additionally, the architect's pre- and post-construction drawings would be preserved at the same libraries. Clearly, this alternative would preserve more of the historic entrance station than Alternative 2.

As with Alternative 2, the contact station enlargement would be done in such a manner as to blend with the historic architecture in the Oregon Shortline Historic District.

#### *Cumulative Impacts*

These would be similar to those of Alternative 2. By retaining the canopy in its existing site, some historic integrity would be retained. Therefore, this alternative's cumulative effects would be slightly less than those of Alternative 2.

#### *Conclusion*

As with Alternative 2, this alternative's impacts would be adverse, long-term, local, direct, and moderate. However, retention of the canopy in its existing location would more completely mitigate these effects than moving it would, as proposed under Alternative 2.



Pursuant to the criteria specified under Alternative 1, and with the mitigating measures discussed above, any impairment of historic resources would be avoided.

### ***Socioeconomic Resources***

#### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to socioeconomic resources were derived from available economic information such as the West Yellowstone resort tax, Internet postings, and park staff's observations of the effects on such resources from both visitor use and construction activities. The thresholds of change for the intensity of impacts to socioeconomic resources are defined as follows:

- Negligible: No effects would occur or the effects to socioeconomic conditions would be below or at the level of detection. The effect would be slight and no long-term effects to socioeconomic conditions would occur.
- Minor: The effects to socioeconomic conditions would be detectable, although short-term. Any effects would be small and if mitigation were needed to offset potential adverse effects, it would be simple and successful.
- Moderate: The effects to socioeconomic conditions would be readily apparent and likely long-term. Any effects would result in changes to socioeconomic conditions on a local scale. If mitigation is needed to offset potential adverse effects, it could be extensive, but would likely be successful.
- Major: The effects to socioeconomic conditions would be readily apparent, long-term, and would cause substantial changes to socioeconomic conditions in the region. Mitigation measures to offset potential adverse effects would be extensive and their success could not be guaranteed.

#### Impacts of Alternative 1 on Socioeconomic Resources

##### *Impact Analysis*

Under this alternative, lines of vehicles would continue to occasionally back up into the town of West Yellowstone, causing delays and frustration to park visitors. Some negligible loss of economic opportunity in the businesses closest to the entrance would be expected, as visitors desiring to park and shop at such places might be expected to turn away, frustrated at traffic.

##### *Cumulative Impacts*

While various projects continue in and around Yellowstone, most projects tend to stimulate the local economy through construction spending, rental income, supply purchase, etc.

Continuing use of the West Entrance would not result in such stimulation, and would result in a negligible impact overall to the regional economy.

### *Conclusion*

Continuing usage of the West Entrance would have negligible effects on the regional economy. The cumulative effect of this alternative, when combined with other past, present, and foreseeable future actions, is expected to be negligible. Because there would be no adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Saguaro National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

### Impacts of Alternative 2 on Socioeconomic Resources

#### *Impact Analysis*

The project is likely to have minor, long-term, direct and indirect, beneficial impacts on the local economy of West Yellowstone, for several reasons. More visitors would likely stop at the Chamber of Commerce contact station, and some that have stopped may spend additional time in surrounding businesses. West Yellowstone residents may be employed in the construction of the new buildings, and non-resident contractors are likely to rent housing in town. Expedited traffic flow, finally, would make queuing into the town very unlikely, thereby reducing traffic congestion in town.

#### *Cumulative Impacts*

While various projects continue in and around Yellowstone, most projects tend to stimulate the local economy through construction spending, rental income, and/or supply purchases. This project would have such effects on the nearby economy, and would result in slight long-term stimulation to the economy through expansion of the local Chamber of Commerce and expedited traffic flow.

### *Conclusion*

Alternative 2 would have direct and indirect, local, long-term, and minor impacts on the area's socioeconomic resources. Pursuant to the criteria specified under Alternative 1, this alternative would have minor long-term beneficial impacts on the local economy. No impairment would result.

### Impacts of Alternative 3 on Socioeconomic Resources

#### *Impact Analysis*

The project is likely to have beneficial, direct, minor short-term impacts and negligible long-term impacts on the local economy of West Yellowstone. West Yellowstone residents may be employed in the construction of the new buildings, and non-resident contractors are likely to rent housing in town. Retaining the entrance at the current site, however, may mean that occasional backups into the town would occur. However, providing wider traffic

lanes, an additional kiosk, improved signage, and an oversized vehicle bypass should reduce such lengthy backups to near zero. Enlargement of the Chamber of Commerce should result in some visitors remaining in West Yellowstone, thereby providing minor long term stimulus to the town's economy.

### *Cumulative Impacts*

Alternative 3's cumulative impacts would be identical to those of alternative 2.

### *Conclusion*

This alternative would have negligible long-term impacts on the local economy, and minor, short-term, direct, and local beneficial impacts on the local economy. Pursuant to the criteria specified under Alternative 2, no impairment would result.

## ***Visitor Use and Experience***

### Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to visitor use and experience were derived from available information on visitor use of Yellowstone Park and the West Entrance, including statistics kept by the Visitor Services Office in Yellowstone. Entrance ranger staff provided input as well, as did West Yellowstone Chamber of Commerce staff. The thresholds of change for the intensity of impacts to visitor use and experience are defined as follows:

- Negligible: Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.
- Minor: Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
- Moderate: Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.
- Major: Changes in visitor use and/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 express a strong opinion about the changes.

## Impacts of Alternative 1 on Visitor Use and Experience

### *Impact Analysis*

Continued operation of the existing West Entrance would cause frustration and delays to park visitors, caught in the long lines of vehicles waiting to enter. Minor damage to the largest of visitor vehicles would continue to occur to those who strike the entrance too strongly. The safety of those driving such large vehicles would be compromised by the continuing need to block the outbound lane for them to enter. Noise and air pollution problems in the winter would continue as well.

### *Cumulative Impacts*

Visitation to Yellowstone increased throughout the early 1990s, but leveled off at about 2.8 million annual visitors in the late 1990s, and has remained at that level since. However, the NPS expects the upward trend to resume if the economic conditions of the mid 1990s return. The vast majority of visitors stay on or near the roadways of Yellowstone, spending an average of about 1.5 days in Yellowstone. The typical visitor enters Yellowstone in an automobile, departing from a different entrance than the one she or he entered.

The National Park Service began a 30-year road improvement program in the late 1980s, and is now well into this project. Old, failing roadways are being upgraded to 30-foot wide roads, which include four-foot paved shoulders for each lane. Such roads significantly improve the visitor experience by providing smoother, wider, more comfortable roads. These roads also expedite traffic flow to some degree.

Delays resulting from continued operation of the West Entrance would be exacerbated by increasing visitation to the park. Such impacts, however, are partly mitigated by the improved traffic flow once visitors are inside the entrance. Overall, selection of this alternative would have direct, local, minor, adverse, and long-term impacts on visitor use and experience.

### *Conclusion*

This alternative would result in continued direct, local, and minor adverse impacts on visitor use and experience. The cumulative effect of this alternative, when combined with other past, present, and foreseeable future actions, is expected to be minor. Because there would be no adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Saguaro National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there would be no impairment of the park's resources or values.

## Impacts of Alternative 2 on Visitor Use and Experience

### *Impact Analysis*

There would be direct, local, short-term, minor inconveniences to park visitors. Small delays due to construction activities and traffic may occur. Construction of the project, though,

would be scheduled in such a way as to minimize disturbances to visitors during the peak summer season (namely July and August). Visitors would need to use a bypass around the construction site, but only for the duration of construction on the entrance station. This bypass would be retained in the final site layout for emergency vehicles and greatly oversized vehicles.

However, there would be long-term, local, direct, minor, and beneficial improvements to the visitor experience under this alternative. With an additional kiosk available, traffic would be expedited and visitors would no longer spend as much time in line waiting. A longer approach to the entrance would smooth traffic and allow visitors more time to react to necessary signage. Institution of a re-entry lane would further expedite traffic, as would the AVI lane for employees and contractors, who now must pass through the existing lines. Wider and taller traffic lanes would further smooth traffic flow.

Still other benefits to the visitor experience would result from this project. Air and noise pollutions would be reduced. A larger Chamber of Commerce building with improved signing would more adequately serve visitors.

#### *Cumulative Impacts*

Given the possible trend toward increasing visitation, selection of this alternative would expedite visitor entry and minimize delays and frustration at the entrance. Selection of this alternative would have long-term, beneficial, and direct impacts on the visitor use and experience of Yellowstone.

#### *Conclusion*

This alternative would have minor, long-term, direct, and local beneficial improvements to the visitor use and experience, with short-term, direct, local, and minor adverse impacts upon it. Pursuant to the criteria listed under Alternative 1, this alternative would not impair the visitor experience in Yellowstone.

#### Impacts of Alternative 3 on Visitor Use and Experience

##### *Impact Analysis*

There would be short-term, direct, local, and minor inconveniences to park visitors. Some delays due to construction activities and traffic would occur. Some confusion would occur as visitors negotiate a temporary entrance and the permanent entrance as it is being remodeled, renovated, and constructed. Construction of the project, though, would be scheduled in such a way as to minimize disturbances to visitors during the peak summer season (namely July and August).

Because this alternative would remain 800 feet closer to West Yellowstone, visitors arriving at the entrance would not find adequate space and reaction time in which to move their vehicles into the appropriate lane. Drivers of long and/or tall vehicles would be especially challenged to change lanes in time without causing either congestion or risk to other drivers. Those drivers unable to change lanes in time might find themselves in the wrong lane, perhaps in the express lane when they do not already possess a park pass, or in the

first-time entry lanes with an existing pass. Vehicles in such situations would add to the congestion and air emissions at the entrance, producing a situation very similar to today's situation. Appendix 2 contains a complete traffic analysis of this issue. The addition of the third traffic queuing lane would partially mitigate this problem, but would not entirely eliminate it. Stacked traffic would exacerbate the insufficient reaction time.

The need for a temporary entrance facility would result in additional costs (over Alternative 2, which would use the existing entrance until the canopy is moved), should this alternative be selected. It would also add some congestion and confusion as visitors approach and navigate around one temporary and active entrance and one permanent entrance under construction.

However, there would be long-term, direct, local, beneficial and minor improvements to the visitor experience under this alternative. With an additional kiosk and queuing lane available, traffic would be expedited and visitors would no longer spend as much time in line waiting. Institution of a re-entry lane would further expedite traffic, as would a lane for employees and contractors, who now must pass through the existing lines. Wider and taller traffic lanes would further smooth traffic flow. Therefore, air and noise pollutions would remain largely unchanged over the long-term.

Finally, a larger contact station in West Yellowstone would more adequately serve visitors. Selection of this alternative would have minor, direct, long-term, and beneficial impacts to the visitor experience, with no impairment.

#### *Cumulative Impacts*

Although traffic flow would not be expedited to the extent to which Alternative 2 would accomplish this, Alternative 3's cumulative impacts on visitor use and experience would be similar to those of Alternative 2.

#### *Conclusion*

Alternative 3, like Alternative 2, would not impair visitor use and experience. Impacts on the short-term scale would be direct, minor, local and adverse, while impacts on the long-term scale would be the same but beneficial. Still, this alternative's long-term impacts would be as great as those of Alternative 2 because retention in its current site would continue to somewhat impact park visitors.

### **Other Planning Efforts in the West District of Yellowstone**

Other actions would be occurring in the park during the course of this action. As of this writing, the National Park Service is proposing to limit the number of snowmobiles entering the park. The proposed limit for the West Entrance is 550 snowmobiles daily, approximately equal to the current average number. Additionally, by 2004 all such machines must use best available technology, which generally means that they will use four-cycle engines to reduce air and noise emissions. Finally, by 2004 all snowmobilers will have to be part of guided groups. Non-commercial guides will be required to take NPS sponsored training on how to tour Yellowstone safely while protecting park resources.

Such training might occur at the Chamber of Commerce building, among other locations in West Yellowstone.

The Madison wastewater treatment plant is scheduled for reconstruction beginning in 2004. The new plant would replace and consolidate the existing, aging plant, moving it away from the roadside and visitor view. The NPS is also building a new sewage treatment plant at Norris, along with a new water treatment system. The water treatment plant will replace two wells currently used for water treatment in the area, and the wastewater treatment plant will replace two failed or failing leach fields. The environmental assessment for the Norris project was completed in November 2002, and the Madison sewage treatment plant EA will be released in 2003 or early 2004.

Yellowstone continues to improve its poor quality roads. Completion of the first phase of the Norris-Madison road is expected in 2003, with the second phase beginning the next year. These projects will replace the poor-quality, 20-foot wide road with a high-quality 30-foot roadbed. The road from Norris to Mammoth will undergo the same improvement upon the completion of the Madison-Norris road. The Dunraven Pass road from Canyon to Tower will be closed for part of 2003 and all of 2004 for a similar upgrade, and the road from Canyon to Fishing Bridge will be improved at the same time. Environmental assessments have been or will be prepared on all these road projects. Road improvements always follow existing alignments or revegetate former roads when new alignments are chosen.

The Finding of No Significant Impact (FONSI) for the Yellowstone Employee Housing Plan (part of the service-wide housing initiative) was signed in December 1992, and the FONSI for the Mammoth Housing Plan was recently approved. Construction of some housing units is proposed each year. In 11 developed areas, approximately 125 year-round and 347 seasonal housing units would be upgraded, replaced, or newly constructed if the plan was fully implemented. Current funding levels allow replacement or rehabilitation of only a few housing units annually. Work at East Entrance is complete and one four-plex unit was constructed at West Entrance. Construction of a new four-plex at Madison will begin in 2003. Work began in Lake and in Tower in 1997 and was completed in 1998. The concessioner is also upgrading employee housing at several developed areas. At Grant Village, housing to replace trailers may be constructed.

At Old Faithful a number of projects are ongoing or scheduled to implement the approved Development Concept Plan--Old Faithful (NPS 1985). Construction is complete on the new sewage treatment plant. Construction of employee housing (three multiple units) to replace deteriorated quarters began in 2001 and will continue as funding becomes available. Planning is currently underway for a new 40,000-sq. foot Visitor Education Center to replace the current Old Faithful Visitor Center. If approved following the completion of an EA, the project is currently scheduled for construction in 2006-07. Construction of a new dorm for concessioner managers began in 2002 and is complete. Renovation of the Old House portion of Old Faithful Inn will begin in 2005.

To comply with the 1992 Leaking Underground Storage Tank Act (40 CFR 240, 281) many fuel oil tanks currently in use at residences throughout the park are being replaced after testing as a part of routine maintenance procedures.

Developments continue to occur on private land within the town of West Yellowstone. The town is surrounded by the Gallatin National Forest, which effectively limits the extent of development in town. Some development occurs on private land in the Hebgen Lake area, but such private land is again limited in extent, being interspersed among U.S. Forest Service (USFS) lands. A major development was planned in the Duck Creek area about five miles north of town, but a recent court settlement ruled against the development. That land will remain undeveloped for the time being.

For the following reasons, Alternatives 2 or 3 would have negligible cumulative effects upon the resources of the Yellowstone area: 1) They would only replace an existing entrance station within Yellowstone National Park; 2) They would enlarge an existing building within the developed footprint of West Yellowstone; 3) They would remedy some air and noise pollution problems; 4) They would incorporate environmentally benign construction standards and be energy efficient; and 5) They would improve the visual quality at the West Entrance.

## **CONSULTATION AND COORDINATION**

Based on this EA, if the project would significantly affect the human environment, a notice of intent (NOI) to prepare an environmental impact statement (EIS) would be issued. Conversely, a finding of no significant impact (FONSI) would be issued if it is determined that there would be no significant impact from this project.

Consultation with the USFWS on threatened and endangered species under 50 CFR Part 402, which implements the Endangered Species Act (16 U.S.C.A. § 1531 et seq.), would be completed. As part of the consultation process, the NPS would seek USFWS concurrence with its determination of effect on threatened and endangered species.

Contractor activities would comply with state and federal air quality regulations, and contractors would operate under applicable permits.

The undertakings described in this document are subject to Section 106 of the National Historic Preservation Act, under the terms of the 1995 Servicewide Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. This document will be submitted to the Montana State Historic Preservation Officer (SHPO) for review and comment.

Native American tribes traditionally associated with Yellowstone National Park will be contacted for input and comment on this project.



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## **AGENCIES AND ORGANIZATIONS CONSULTED**

This Environmental Assessment is being sent to approximately 240 individuals, agencies and groups soliciting comments on the problems, issues, and alternatives addressed. A press release was issued on September 5, 2003. The Environmental Assessment is posted on Yellowstone National Park's web page, <http://www.nps.gov/yell/technical/planning>.

### ***Agencies/Libraries That Will Receive This Environmental Assessment:***

US Fish and Wildlife Service - Cheyenne, WY  
 Montana Office of Federal Land Policy  
 Montana State Historic Preservation Office  
 Billings, MT Public Library  
 Bozeman, MT Public Library  
 Cody, WY Public Library  
 Jackson, WY Public Library  
 West Yellowstone, MT Public Library  
 Yellowstone National Park Research Library

### ***Tribes, Agencies, and Organizations That Will Be Notified Of This Environmental Assessment:***

Northern Arapaho Tribe	Idaho Department of Commerce
Blackfeet Tribe	Idaho Department of Parks and Recreation
Northern Cheyenne Tribe	Idaho Fish and Game Department
Cour d'Alene Tribe	Idaho State Historic Preservation Office
Confederated Tribes of Salish and Kootenai	Little Bighorn Battlefield NM
Crow Tribe	Montana Department of Commerce
Crow Tribe/Apsaalooke Nation	Montana Department of Fish Wildlife and Parks
Kiowa Tribe	Montana Intergovernment Review
Nez Perce Tribe of Lapwai	Clearinghouse
Nez Perce Tribe of Nespelem	Natural Resource Conservation Service -
Nez Perce Tribe of Colville	Bozeman and Cody
Eastern Shoshone Tribe	Shoshone National Forest
Shoshone-Bannock Tribes	Targhee National Forest
Assiniboine and Sioux Tribes of Fort Peck	Teton County Certified Local Government
Gros Ventre and Assiniboine Tribes	Town of West Yellowstone
Cheyenne River Sioux Tribe	US Army Corps of Engineers
Crow Creek Sioux Tribe	Western Federal Lands Highway Division
Flandreau Santee Sioux Tribe	Wyoming Department of Transportation
Lower Brule Sioux Tribe	Wyoming Game and Fish Department
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Rosebud Sioux Tribe	Wyoming State Lands and Investments
Standing Rock Sioux Tribe	Wyoming State Library
Spirit Lake Sioux Tribe	Wyoming Travel Commission

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<p>Cooke City/Silver Gate Chamber of Commerce Defenders of the Rockies Defenders of Wildlife Fremont County Audubon Society Gallatin County Commissioners Gardiner Chamber of Commerce Great Bear Foundation Greater Yellowstone Coalition Hamilton Stores, INC Idaho Falls Chamber of Commerce Idaho Wildlife Federation Jackson Hole Conservation Alliance Jackson Hole Chamber of Commerce Lander Chamber of Commerce Livingston Chamber of Commerce Montana Audubon Council Montana State University Montana State Preservation Office Montana Wildlife Federation National Audubon Society National Parks and Conservation Association Nature Conservancy – Idaho Chapter Nature Conservancy – Montana Chapter Nature Conservancy – Wyoming Chapter National Wildlife Federation Northern Plains Resource Council Northern Rockies Conservation Cooperative Northwestern University Park County (MT) Commissioners Park County (WY) Commissioners Park County Environmental Council</p>	<p>Pinedale Chamber of Commerce Red Lodge Chamber of Commerce Riverton Chamber of Commerce Sacajawea Audubon Society Sierra Club Idaho Chapter Sierra Club Northern Plains Regional Office Sierra Club Teton Group Sierra Club Utah Chapter Snake River Audubon Society Star Valley Development Association Stone Fly Society Teton County Commissioners Teton County Historic Preservation Board University of Colorado University of Wyoming Upper Missouri Breaks Audubon Society Utah Audubon Society Utah Wilderness Association Utah Wildlife Federation West Yellowstone Chamber of Commerce Wild Forever Wilderness Society Wyoming Wildlife Federation Wyoming Association of Professional Historians Wyoming Heritage Society Wyoming Outdoor Council Xanterra Yellowstone Association Yellowstone Park Foundation Yellowstone Valley Audubon Society</p>

Special mention goes to three partners closely involved in the design and construction of the new entrance station and visitor contact station: the U.S. Green Building Council, the State of Montana, and the West Yellowstone Chamber of Commerce.

## APPENDIX 1: Yellowstone Revegetation Guidelines

Revegetation efforts within the park have focused on careful management of topsoil as the only available growing medium and seed source. This is based on a park policy that seed obtained from sources outside the park would contaminate the park gene pools. Although it is a conservative method, the topsoil management approach has worked well.

The park has an interagency agreement with the Bridger Plant Material Center to assist in the formation of a park seed bank. The park has also tested mulches and can make this information available upon request.

All construction work within the park involving ground disturbance will meet the following criteria for revegetation accepted by the park.

1. All construction will be limited to that area necessary to complete required work. No activity, including vehicle or material use or storage, will be allowed outside the predetermined zone. If vehicles are to be traveling through an area numerous times, the same tracks will be used to prevent compaction in other areas. Compacted zones will be treated (raking, aerating, and replacement of topsoil) to assist revegetation. No one will drive up topsoil at any time.
2. Excavation and improvement will be handled in manageable sections that reflect changes in the soil and vegetation. Trenching routes and disturbance zones will be flagged and approved by the park. All flagging and debris will be removed from the area after work is completed.
3. Sections will be rehabilitated as soon as possible. Topsoil will not be stockpiled over the winter or for longer than three months in sagebrush/rabbitbrush zones or longer than six months in grass-dominated zones. Any deviation must be approved by the NPS.
4. Topsoil refers to the uppermost soil horizon; it is usually found in the top 5 to 15 centimeters (2 to 6 inches). Topsoil will be removed and replaced from the same area. Care will be taken to ensure that topsoil and fill material are not mixed and are stockpiled in separate areas (e.g., topsoil to the right of the trench and fill to the left).
5. Vegetation over 0.9 meters (three feet) in height will be removed before the removal of topsoil and in a manner that least disturbs the topsoil. No one will drive upon, gouge, or compact topsoil as vegetation is removed. Topsoil will be removed before stumps are pushed. The park must approve any deviation from this process.
6. After large trees are removed, topsoil will be removed from an area in a single cut, including any vegetation that is 0.9 meters (three feet) tall and under. Grubbing is not permitted.
7. Irregular land surfaces are recommended for a natural effect. Some rock outcropping and boulders may be left in place to create natural pockets for revegetation (see item 11). Deadfall snags may be stockpiled for later use on slopes that are very steep to provide catch points for soil.
8. Topsoil will not be used as bedding material. Separate bedding material will be obtained from sources approved by the park.

9. Topsoil will be replaced on-site in a mixture of topsoil and vegetation associated with the topsoil and will be reworked over the site in a manner that preserves the seed source while spreading the soil over the area.
10. No topsoil will be imported from outside the park or moved internally within the park unless approved by the NPS. Any imported fill will be checked for exotic plants.
11. Trees and shrubs will be avoided if possible during trenching or excavation. Any trees removed during construction will be removed from the site unless specified by the park.
12. If replacement seed is required for revegetation in an area, the park will provide seed at cost to the contractor. Advance notice of six months to one year is required on projects exceeding 93 square meters (1,000 square feet).
13. Boulders unearthed during construction may be reburied or left exposed (with lower third buried) depending upon the location and extent of rock naturally occurring in the area.
14. If a trench is required, the surface of the trench will be left mounded to allow for settling along the line.
15. If mulch is required in sensitive areas due to visibility or exotic plant infestation, the park will specify the type and depth of mulch to be used. Nitrogen may be added in small quantities to any wood product used on slopes to balance nitrogen lost through decomposition.
16. No fertilizer will be used in any revegetation work unless requested by the park.
17. If relocated due to road reconstruction, junction boxes or cans will be placed in the field and approved by the park. Locations should be well screened by vegetation, topography, or large boulders.
18. All access to the site and stockpiling or staging areas will be identified by the contractor and approved by the park. These areas will be revegetated using approved techniques upon completion of the project.
19. All debris will be removed from the site to an approved pit or hauled away as approved by the park.
20. Final review and inspection will be made by the park before the work is accepted.



## APPENDIX 2: West Entrance Station Traffic Study

The proposed location of the new West Entrance Station is based on available visitor and employee traffic data. The number and types of vehicles are factors as are roadway configuration and basic motorist reactions to stimuli in creating a safe and enjoyable Yellowstone National Park Entrance Station environment.

### Existing Conditions

Available traffic data indicates that 3,145 vehicles on average pass through the West Entrance Station daily during the peak July visitation. Of these vehicles approximately 70% are re-entry visitors or Park employees. Thirty percent of the vehicles are first time visitors requiring pass payment and information. It takes approximately 10 seconds for rangers at the Entrance Station to verify Park employee passes and receipts for re-entering visitors. The pre-pass lane is designated for these motorists. The first-time visitor spends on average about 138 seconds with the ranger at the kiosk. Rangers at the entrance shorten this time during especially busy periods, but such an abbreviation comes at the expense of the visitor's experience. Two minutes is the minimum amount of time necessary to answer important visitor questions and alert them to critical park safety and road information.

Because of the minimal duration of time that employees and re-entry visitors need to spend with a ranger at the kiosk, a single speed-pass lane will be adequate to serve even a projected 25% increase in visitation with little or no waiting.

July is the period of peak visitation, with the busiest hours at the Entrance Station occurring between 8:30 a.m. and 11:30 a.m. During every hour of this time period, the three first-time visitor lanes will each accumulate approximately 404 feet of stacked vehicle length (multiplying the number of first-time entering vehicles by 138 seconds, divided by 3 kiosks).  $404 \text{ feet/hour/kiosk} \times 3 \text{ hrs} = 1,212 \text{ feet}$  of vehicles that will stack in front of each kiosk. While rangers reduce this load somewhat by shortening the amount of time spent with each visitor, stacked vehicles do commonly back up more than 800 feet.

Approximately 1,000 feet inside the Park's west boundary the two in-bound traffic lanes divide into four lanes that queue in front of three ranger kiosks and one express lane (the express lane does not have a kiosk). The present Entrance Station is located approximately 1,500 feet inside the west boundary. The three queuing lanes are only about 500 feet in length, less than half the length needed to adequately handle peak traffic volume. The fourth, right-most express lane serves visitors and pre-pass employees. A non-public access drive (serving an employee residential area and concessioner warehouses) is located approximately 650 feet inside the Park boundary line.

During peak July morning rushes, it is common for the pre-pass lane to be blocked by the stacked first-time vehicles. Park employees sometimes use the non-public, uncontrolled access road as an alternate route to by-pass the Entrance Station. At times during the summer, even the non-public access road is blocked by queued vehicles. Stacked vehicles have even backed up into the town of West Yellowstone on occasion.

### Safe Road Design

Key to safe road design are appropriate roadway configurations and allowing for human limitations. Twenty-five miles per hour is the posted speed limit imposed on in-bound Park motorists. Dozens of factors affect the motorist's ability to take in information, process it, and react appropriately: weather, sun angle, road conditions, road configuration, vehicle type, other vehicles, required lane changes, cultural and societal training, environmental distractions (inside and outside

the vehicle), and the complexity of any combination of these factors. According to American Association of Highway and Transportation Officials (AASHTO) design guidelines, motorists require a minimum 2.5 seconds to perceive and respond to stimuli that require braking. Comprehension and response to visual information also requires about 2.5 seconds.

Typical motorists feel comfortable exceeding posted speed limits by approximately 5 mph without fear of reprisal. Therefore, this analysis assumes a travel speed of 30 mph on wet roads and an environment with relatively complex stimuli. At this speed, drivers would need 200 feet for perception, braking and stopping a vehicle. 110 feet is required to comprehend and react to visual information. Additional time and space are needed for complex maneuvers such as changing lanes, particularly for larger vehicles such as buses and RVs, many of which are pulling tow vehicles. During peak visitation periods, 29 RVs and two buses enter this entrance each hour. Clearly, complex maneuvers and long vehicles require substantially more time and distance to react safely.

Visitors approaching the entrance are facing many different stimuli, requiring even more time to react, change lanes, slow down, and/or stop. Specifically, motorists currently encounter several informational and directional signs between the Park's boundary and the West Entrance Station: 1) Welcome to Yellowstone National Park sign; 2) Speed limit (requires motorist response); 3) Non-public access road (requires motorist response and braking or passing of braking vehicle); 4) Pre-paid/speed pass to right sign (requires motorist response); 5) Red/green "lane open/closed" lights on kiosks (requires motorist response); and 6) Permit Fee Amount sign. They also face large numbers of other vehicles, potential lane changes, and environment distractions upon entering Yellowstone's busiest gateway. The large number of signs and other stimuli mean that motorists will need several multiples of the 2.5-second reaction time to safely drive and to steer into the correct lane. Assuming the typical driver will need to react to at least half the signs plus other stimuli, we find that he/she will need an average of 12.5 seconds to react, which translates into about 540 feet of road distance.

When this length of reaction time and distance are added to the space that queued vehicles occupy (ranging up to 1,200 feet on the busiest days), we find almost 2,000 feet are needed for visitors to safely and enjoyably approach the entrance station. With the current entrance located at 1,500 feet, there is not always adequate distance between it and the Park boundary line to accommodate distance and response time needed for informational signs, lane maneuvering and braking distances. Furthermore, access to the non-public employee housing area road would remain a problem if the Entrance Station remained at its current location.

In conclusion, creating a safe environment for visitors with appropriate signage for guidance and direction, with adequate reaction distances, and the distance required to accommodate queued traffic mean that an Entrance Station that effectively serves visitors should be located at least 2,000 feet east of the Park boundary.