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

Old Faithful Visitor Education Center

Environmental Assessment

January 2005

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 March 10, 2005, and should be addressed to:

Superintendent
Attn: Planning and Compliance
Old Faithful Visitor Education Center Project
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Yellowstone National Park, WY 82190

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INTRODUCTION

Yellowstone National Park was established as the world's first national park on March 1, 1872. The enabling legislation passed by 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." The legislation also specified that the park was established to protect the resources within "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). Since 1916, when the National Park Service (NPS) was established, park managers have endeavored to protect these resources for the enjoyment, education, and inspiration of this and future generations.

One of the goals established by Yellowstone National Park in its Strategic Plan (NPS 2000a) is to "provide for the public use and enjoyment and the visitor experience in Yellowstone National Park." There are two defining parts to this particular goal. The first stating that "visitors to Yellowstone National Park safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities." The second stating that "park visitors and the general public understand and appreciate the preservation of Yellowstone National Park and its resources for this and future generations." As part of the NPS mission and in support of this park goal, Yellowstone National Park operates visitor centers at strategic locations around the park.

As in other national parks, Yellowstone's visitor centers provide central locations where visitors can obtain orientation and general park information, receive educational information about resources through interpretive services, and find other types of visitor services. These functions are accomplished through personal contacts, exhibits, audiovisual presentations, and sales of interpretive items. Visitors are best served when they are able to obtain all necessary information and park permits (*e.g.*, backcountry, fishing, boating) in one location. To this end, all new visitor centers are designed to accommodate the staffing, offices, and functions necessary to facilitate "one- stop shopping."

As described in the park's *Long- Range Interpretive Plan* (NPS 2000b), Yellowstone's visitor centers are divided into three groups: satellite visitor centers, which are located in communities within a short drive of the park (such as the Jackson Hole/Greater Yellowstone Visitor Center in Jackson, Wyoming); gateway visitor centers, which are located at the entrances to the park (such as the West Yellowstone Public Lands Desk); and in- park visitor centers, which are located within the park. These three types of visitor centers are like concentric circles and provide a layered system of information, orientation, and interpretation. Satellite and gateway visitor centers focus on providing general information and orientation while most in- park visitor centers emphasize interpretation of the park's resources while also providing information and orientation for visitors.

In- park visitor centers are located near the natural and/or cultural features they are designed to interpret in order to facilitate visitor understanding and appreciation of park resources and features by providing immediate on- site interpretive services. The interpretive exhibits planned for the proposed Old Faithful Visitor Education Center (OFVEC) will focus on the park's hydrothermal resources, the primary features that led to Yellowstone being set aside as a national

park. Yellowstone contains the world's greatest collection of hydrothermal features, including more geysers than the rest of the world combined. These features are a product of underlying geological activity, and their heated waters are habitat for diverse thermophilic life forms that we are only beginning to understand.

History/Background

The Old Faithful area has been a primary destination for park visitors since the 1870s. The development provides services for day visitors, overnight visitors, and the support staff who maintain these services for the visitor.

Many historic structures exist in the area, and the Old Faithful Historic District was listed in the National Register of Historic Places in 1982. The boundaries of this district encompass the proposed OFVEC. The Old Faithful Inn, built in 1904 and directly west of the proposed OFVEC, was designated a National Historic Landmark by the Secretary of the Interior in 1987.

The existing 14,500- square- foot Old Faithful Visitor Center complex was designed by NPS architect Packwood Hunter and constructed in the early 1970s on the site of the original 1928 Upper Geyser Basin Museum, which was designed by Herbert Maier. While the original wood and stone museum was designed to blend into the historic surroundings, the current visitor center (see Figure 1) was built at the end of the Mission 66/Parkscape era, a nationwide NPS building program begun in the mid- 1950s that promoted ambitious, modern structures for the automobile- traveling public. Visitor centers of that era were usually built with large lobbies and an auditorium, but with little or no space for exhibits presenting more in- depth information and interpretation of the park or its resources.

Figure 1: Old Faithful Visitor Center

The Old Faithful Visitor Center was purposefully finished and dedicated in 1972, the centennial year of the establishment of Yellowstone National Park. The complex includes the visitor center with an attached restroom facility, two separate theaters (later converted into winter warming huts and used for storage in summer), and a large, concrete pedestrian plaza. A fairly intricate landscape design that included many wide concrete walkways, pedestals for two "prediction boards" for Old Faithful Geyser eruptions (long since removed because the electronic system did not work), a large number of benches, tree wells, and polygonal planting beds partially remains.

From the beginning, the facility was too small to accommodate the thousands of visitors who come to see Old Faithful each year. Additionally, the visitor center at Old Faithful is unique among NPS visitor centers because of how visitors use the facility. Visitors come to the Old Faithful area specifically to see Old Faithful Geyser erupt. Currently, eruptions occur about every 92 minutes. During the peak of the summer season, approximately 2,000 to 4,000 visitors patiently wait on the boardwalk surrounding Old Faithful Geyser for each eruption to occur. Once the eruption is over, these visitors will quickly move toward the visitor center, resulting in a phenomenon called "geyser flush." Because of the small size of the lobby and the floor- to-ceiling windows on the front of the building, once the first groups of visitors crowd into the building other approaching visitors see the mass of people inside and are discouraged from entering. A visitor experience study conducted in 2002 in Yellowstone and Rocky Mountain national parks found that the most important issue to respondents relating to their experiences in visitor centers is crowding (Eisenberger and Loomis 2002). Because of the numbers of visitors needing information, staff at the visitor center information desk have little time to answer more than simple questions.

The crush of people in the lobby is exacerbated because functions not originally planned for during the facility's design have since been added to the visitor center. At the time the visitor center was built, no space for the park's non- profit cooperating association, which provides educational and interpretive information for visitors through its visitor center bookstores, was planned. Consequently, the educational bookstore and sales operation were placed at one end of the lobby. Through time, this operation has grown and now occupies about 50 percent of the lobby. Because the bookstore occupies so much of the lobby, the lines of visitors waiting to talk to staff at the information desk are uncomfortably crowded into the remaining available lobby space. Likewise, visitors who would like to browse through materials in the book sales area cannot do so in the elbow- to- elbow crowding surrounding the bookshelves and sales displays.

As mentioned above, the visitor center at Old Faithful was not designed to include interpretive exhibits. However, from the time that the visitor center opened, visitors have wanted interpretive information and have expressed their frustration and disappointment with its absence. The lack of adequate interpretive exhibits results in visitors not understanding what they are seeing and can lead to resource damage and unsafe visitor behavior. Recent studies support the need for interpretive exhibits. The Eisenberger and Loomis (2002) visitor experience study found that visitors want more information in exhibits and displays. And, a comprehensive analysis of visitors to Old Faithful completed in 2002 shows that visitors desire educational information about the hydrothermal resources they are seeing (Gyllenhaal 2002).

Besides the problems with the lack of interpretive exhibits and the problems in the lobby, the 100- seat theater is too small for the numbers of people wishing to see the film presentations. The theater was not designed for modern film equipment, the seating arrangement is cramped, and

the screen is quite small. The entrance area to the theater in the lobby becomes jammed with people queuing for the next show, adding to the crowding in that space.

Due to insufficient space in the current visitor center, the backcountry permitting office is located some distance away in the ranger station. Backcountry hikers and campers who come to the visitor center seeking information and permits must be sent to another building not visible from the visitor center lobby across a large parking lot.

Some key administrative offices are also located off- site due to space limitations. The large staff in the summer (17 NPS employees and 6 cooperating association employees) must share approximately 650 square feet of office space (including a program preparation room with slide files), most of which is on the second floor. Access to the second floor is by a narrow set of stairs and is not compliant with either the Uniform Federal Accessibility Standards (UFAS) or the ADA (Americans with Disabilities Act) standards.

Other building design and structural problems quickly surfaced once the building opened. Because the visitor center was designed in a triangular motif and is of an A- frame style, there is much wasted space inside (there is not one square corner in the building). The structure was not well insulated, as winter use was not contemplated; however, such use began almost immediately. Consequently, a new heating system had to be installed, but it never worked properly. In later years, another system was installed, but comfortably and efficiently heating the building remains problematic.

The building was not designed with Yellowstone's climatic conditions in mind and, with less than adequate insulation and a wall of floor- to- ceiling windows across the north- facing front of the visitor center, the building is not energy efficient. Additionally, because of inadequate ceiling insulation, snow on the roof would melt and ice dams would form, resulting in leakage and damage. A secondary roofing system was installed to create an air space and prevent this situation. There are large aggregate concrete piers at the sides of the building that the massive laminated beams for the A- frame design are anchored to. The tops of these piers are exposed to water and snow coming off the roof and have deteriorated substantially, exposing the rebar ladders underneath. The building's roof and part of its sides are covered with an asbestos- based material under the shingles that is now exposed and a potential health hazard. A geotechnical report prepared for the proposed construction site included an evaluation of the building for seismic stability; the building was determined to pose a risk of "catastrophic failure" in the event of a moderate to severe earthquake (Yellowstone is the most seismically active area in the Intermountain West with an average of 2,000 earthquakes occurring here each year).

Finally, the current visitor center is a modern structure that does not harmonize with or complement the historic buildings surrounding it. Visitors often have difficulty locating the facility despite its proximity to Old Faithful Geyser because they do not recognize the building as a visitor center despite signage.

While the inadequacies of the current visitor center were first documented in the mid- 1980s, lack of funding prevented any consideration of constructing a new visitor center. In 1999, the Yellowstone Park Foundation, a non- profit organization whose purpose is to help the NPS protect, preserve, and enhance Yellowstone National Park, pledged to raise significant private monies for this project, enabling the NPS to begin the OFVEC planning process.

PURPOSE AND NEED

Purpose and Need

The NPS proposes to build a new visitor education center at Old Faithful to replace the current inadequate visitor center. More than 3 million visitors come to Yellowstone each year, and most (approximately 85 percent) visit the Old Faithful area. The need for information, orientation, and educational services at Old Faithful is considerable. Yet those needs are not being met, and the visitor experience is marred by the current visitor center, which is too small to accommodate the nearly 25,000 daily visitors to the Old Faithful area during the summer and has no space for interpretive exhibits. Visitors leave the Old Faithful area without a basic understanding of or appreciation for the complexity and interconnected nature of the geysers they see and the volcanic activity that defines Yellowstone National Park.

The project's objectives are to construct a new visitor education center in order to provide the critical information necessary for park visitors to have safe, enjoyable, and satisfying experiences and to enhance their understanding and appreciation of park resources and values. Additional objectives include consolidating all appropriate services (e.g., bookstore, classroom, research library) and offices (e.g., backcountry office, administrative offices) into one location in order to better serve visitors; to provide a facility that is fully accessible to both visitors and employees and corrects or eliminates existing health and safety issues; and to ensure that the facility is constructed in a manner that fits the environmental conditions and is sustainable and efficient in design. Finally, an important objective is to ensure that the primary visitor contact center in Yellowstone is designed to be compatible with the signature "parkitecture" architectural style of the Old Faithful Historic District.

Scoping

Public scoping to identify issues, concerns, and alternatives about the proposed new OFVEC was conducted twice, first in summer 2000 and again in summer 2003. Both times, letters were mailed to previously identified interested parties, and the scoping letter was posted on the park's Internet website. Press releases about the scoping period were issued to regional media at the beginning of each scoping period.

Initial scoping was carried out between June 21 and July 24, 2000. A total of 13 comments were received, including ten from individuals, one from an organized group, one from the Wyoming State Historic Preservation Office (SHPO), and one from a Native American tribe. In general, comments were supportive of the project except for three individuals who did not want a new visitor education center built until sewage system problems in the park had been addressed. (Note: A new sewage treatment facility that services the entire Old Faithful developed area was completed in June 2002.) Substantive issues raised by the public included concerns about the architectural design of the building and the risk of potential impacts to hydrothermal resources.

A second scoping period was held between June 24 and July 25, 2003. The public was updated on the progress of the project. Specifically, ongoing consultation with the Wyoming SHPO (since 1999) had resulted in a change in the architectural design of the new visitor education center. Additionally, because the current visitor center complex was determined eligible for listing in the

National Register of Historic Places, a Memorandum of Agreement among the Wyoming SHPO, the Advisory Council for Historic Preservation (Advisory Council), and the NPS concerning the demolition of the current visitor center complex was prepared and signed (see Historic Resources section for further discussion of these items). Data on the soils and hydrothermal resources had also been gathered since the first scoping letter was distributed. Soils testing was done in fall 2000 with favorable results for construction (see Soils section for further discussion). In 2002, a subsurface monitoring system was installed to collect temperature data in order to detect any hydrothermal fluid movements in the area proposed for construction (see Hydrothermal Resources section for further discussion). Again, public comment on issues of concern was solicited. A total of seven comment letters were received, four from individuals, one from the U.S. Fish and Wildlife Service (USFWS), one from the Teton County Certified Local Government, and one from the same Native American tribe that had commented during the first scoping period. Again, comments were generally supportive of the project. The USFWS stated that that agency had no concerns with the proposed project's impact on threatened or endangered species, and the Teton County Certified Local Government expressed their opinion that the design of the building was too "modern and showy."

Impact Topics

Issues and concerns affecting the proposed project were identified by NPS specialists in Yellowstone National Park during internal scoping and through comments received from interested members of the public and other federal and state agencies during public scoping. These issues and concerns combined with federal laws, regulations, orders, and NPS Management Policies (2001a), led to the development of the following impact topics that this environmental assessment (EA) will analyze. Impact topics are the resources of concern that could be affected by the range of alternatives. These topics were developed for discussion focus to ensure that alternatives were compared on the basis of the most relevant topics. Topics include soils; hydrothermal resources; vegetation, including rare plants; wildlife; threatened and endangered species; visual resources, including lightscapes; historic resources; and visitor use and experience.

Impact Topics Dismissed from Further Consideration

Water Resources and Water Quality

National Park Service policies require protection of water quality consistent with the Clean Water Act. The sandy, rhyolitic, dry soils in the Old Faithful area absorb most rainfall and snowmelt, thereby allowing few streams to develop. No permanent or seasonal streams are found in the proposed project area. Surface runoff from Old Faithful Geyser (the closest hydrothermal feature to the OFVEC) flows away from the project site and toward the Firehole River, which is about 1/3 mile north of the proposed project area.

Human activities can influence water quality through wastewater discharges, runoff from roads and other paved areas, and erosion. The construction of the proposed OFVEC is not expected to increase visitation to the Old Faithful area or to increase the load on the new wastewater treatment system, which was completed in June 2002. This extended- aeration, activated- sludge treatment facility meets federal pollution- elimination- system regulations and complies with water quality standards for Wyoming ground waters. Collection lines for the system are

continually monitored and replaced as necessary. Because the proposed project is not expected to increase visitation to the area, no additional parking is proposed that could increase runoff of surface waters. Standard erosion control devices would be used at the project area to prevent runoff from the construction site. Any collected rainwater would then be allowed to slowly disperse and filter into the ground. Because none of the alternatives would impair water resources or water quality, this impact topic was 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 proposed OFVEC is not within the 100- year floodplain, this impact topic was dismissed from further consideration. A Statement of Findings for floodplains will not be prepared.

Wetlands and Other Waters of the United States

Executive Order 11990 requires federal agencies to avoid, where possible, adversely impacting wetlands. Proposed actions that have the potential to adversely impact wetlands must be addressed in a Statement of Findings. A survey of the project area revealed that there are no wetlands in the proposed project area. Therefore, this impact topic was dismissed from further consideration, and a Statement of Findings for wetlands will not be prepared.

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.

There are currently no major point sources of air pollution in the vicinity of the park. Occasional periods of degradation may occur due to regional haze or forest fire smoke. The major sources of air pollutants in the area are those emitted locally by motor vehicles (automobiles, recreational vehicles, busses, snowcoaches, and snowmobiles) concentrated along motorized routes and in developed areas and from smoke from wood fires (stoves, fireplaces, and campfires).

There would be no long- term impacts on air quality or visibility in the Old Faithful area as a result of this project. Any effects would be temporary and limited to the duration of construction. Additional dispersed dust and mobile exhaust emissions could be caused by truck traffic and equipment activity. To partially mitigate these effects, water sprinkling would occur to reduce fugitive dust, and appropriate limits would be placed on the idling of vehicles. Contractor activities would comply with state and federal air quality regulations, and contractors would operate under applicable permits. Because this project would not result in long- term impacts to air quality or visibility, this impact topic was dismissed from further consideration.

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 impact topic was dismissed from further consideration.

Environmental Justice

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

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." Because no Indian trust assets occur within Yellowstone National Park, this impact topic was dismissed from further consideration.

Archaeological Resources

In 2001, the park archeologist completed a file search of both the park's Cultural Sites Inventory and the Cultural Records Office in Laramie, Wyoming, for information on archeological resources in the Old Faithful developed area. Both searches resulted in findings that no archeological inventories of this portion of the developed area have ever been done, nor have any archeological sites ever been identified. However, because the proposed OFVEC would be constructed on the same site as the current visitor center complex and because the entire surrounding area has been repeatedly disturbed by construction projects during the past 100 years, the park archeologist determined that an archeological survey of the area was not warranted. The Wyoming SHPO concurred with this determination on July 17, 2001.

Construction zones would be kept to the minimum necessary through fencing around the project site. If construction activities discover previously unknown archaeological resources, all work immediately on and adjacent to the site would stop until the park archaeologist could identify and document the resources and until the Wyoming SHPO and NPS could develop an appropriate mitigation strategy.

Because it was judged that no archaeological resources would be impacted by this project and because monitoring for such resources would occur as construction proceeds, 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 19th century, Euro- American explorers documented year- round occupation of areas within the park by a band of Shoshone Indians known as the Sheepeaters.

Today, the tribes that are associated 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 Old Faithful area, but it did identify two different historic trails, one of which, the Nez Perce (Nee- Me- Poo) National Historic Trail, is near the Old Faithful area.

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 did pass close to the Old Faithful area. After eluding the Army for more than 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 the Old Faithful area (Nabokov and Loendorf 2002).

Because the proposed project area has not been identified as having or being an ethnographic resource and because construction would occur on previously impacted land within the Old Faithful development, this proposal is expected to have no or negligible impacts on ethnographic resources. Therefore, this impact 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 NPS would 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 would consult with the tribes to mitigate such impacts. The location of any such ethnographic sites would remain confidential.

Socioeconomic Resources

Yellowstone plays a prominent role in the social and economic life of the greater Yellowstone area. The park extends into five counties in three different states including Teton and Park counties in Wyoming, Gallatin and Park counties in Montana, and Fremont County in Idaho. The U.S. Forest Service, the state of Montana, and a few private landowners manage most of the property surrounding the park.

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.

Economic activity within the park is concentrated in six locations: Old Faithful, Grant Village, Fishing Bridge/Lake/Bridge Bay, Canyon, Tower/Roosevelt, and Mammoth Hot Springs. A wide range of visitor services are available in these areas including food, gas, lodging, transportation, horse rental, and medical services. Less than 2 percent of Yellowstone is developed, which, along with the services listed above, includes roads, trails, utilities, employee housing, and park administrative facilities.

Construction of the OFVEC is not expected to increase total visitation to the park, but might provide some area residents with jobs during the construction phase. Typically, firms from across the region and the West bid on construction projects in Yellowstone, and the successful bidder brings their own crews with them to the job site. During the project, the construction firm’s employees would be housed and fed in a contractor camp in the Old Faithful housing area. At the peak of construction, it is estimated that approximately 50 contractor employees would be working on the project.

Because construction of a new OFVEC or continued operation of the existing visitor center would result in negligible effects on the socioeconomic resources of the region, this impact topic was dismissed from further consideration.

ALTERNATIVES CONSIDERED

All major NPS projects are evaluated using value analysis, the systematic process whereby a project's required functions and their estimated values are identified, and the lowest overall cost to provide those functions is outlined. Initial value analysis for the OFVEC project was conducted in 1999. All public service functions that should be located within the visitor center were defined. They include information and orientation services, interpretive and educational exhibits, an auditorium for interpretive and education films, a classroom and library, the backcountry permitting office, cooperating association bookstore, and public restrooms. Additionally, the office spaces and storage spaces necessary to staff the visitor center and adequately provide services for the public were also defined. A second, more in- depth value analysis was held in 2003 to review the validity of these functions, how the visitor education center space allocations and floor plans met the needs of those functions, and analyze the costs and benefits of various proposed alternatives.

However, in 2003 as the planning for the OFVEC project was progressing, Congress directed the NPS to develop a Visitor Center Planning Model that standardized the sizes of the various functions found in visitor centers as well as the total size of visitor centers. All proposed visitor centers, nationwide, must be evaluated by this model. Various data including park visitor statistics, the number of visitors to the specific area, capture rate (percentage of visitors who go to the visitor center), length of stay, and other factors are input into the model, which then recommends the size of the visitor center. The OFVEC planning team supplied data and rationales to the planning model team, and the OFVEC project was "run" through the model.

Finally, all proposed capital improvement projects within the national park system that exceed $500,000 must also be reviewed and approved by the NPS Development Advisory Board (DAB), a panel of NPS senior managers and non- NPS expert advisors. The DAB reviewed and approved the concept of the OFVEC project in May 2002. Questions raised concerning the size, scale, and massing of the building; the efficiency of operating the facility year- round; and, the impact of the proposed structure on the landscape were addressed at the second DAB presentation in April 2004. The visitor center model results were also addressed at that DAB, when final approval to proceed with compliance and design development for the preferred alternative was granted.

For a full discussion of the evolution of the preferred alternative, please see "Alternatives Considered, but Rejected."

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

	Alternative 1: No Action	**Alternative 2:** Preferred Alternative 33,000 (approx.) Square- foot Option
Summary of Alternatives	Current visitor center would remain in use.	NPS would construct a new 33,000 sq.ft. (approximate) visitor education center in same location as existing VC. New building would be compatible with the OF Historic District and feature sustainable design technologies, adequate exhibit space, lobby, separate bookstore, back-country office, library, auditoriums, classroom, public restrooms, office space, and storage areas.
PROJECT OBJECTIVES		
Provide Adequate and Appropriate Interpretative Services	Space for critical safety and resource protection information would remain inadequate. Space for interpretive exhibits to enhance visitor understanding of resources would remain inadequate. Auditorium space would continue to be inadequate. The alternative would not meet the objectives.	New OFVEC would provide appropriate services and critical information for visitors to Old Faithful and YNP in order for them to have safe, enjoyable, and satisfying experiences. Interpretive exhibits would enhance visitor understanding and appreciation of park resources and values. The alternative would meet Yellowstone's Strategic Plan goal for public use, enjoyment, and the visitor experience. Adequate auditorium space would be provided. The alternative would meet the objectives.
Provide Adequate and Appropriate Visitor Services	Visitors would continue to have difficulty finding VC. Ability to disperse information would remain inadequate. Visitors would continue to be sent to a distant location for backcountry permits. The bookstore would continue to encroach upon the lobby. Educational groups would continue to have no place to meet and learn. Inadequate office and workspace would remain, hindering staff's ability to serve visitors. The alternative would not meet the objectives.	New OFVEC would be recognizable; have improved signage; and provide accessible, "one- stop shopping" with the backcountry office/services within, thus serving more visitors more effectively and efficiently. Self-contained bookstore would provide visitors an appropriate venue for browsing and purchasing educational materials. A dedicated classroom would be available to educational groups. Adequate office and employee spaces would be provided allowing staff to better serve visitors. The alternative would meet the objectives.

	Alternative 1: No Action	**Alternative 2:** Preferred Alternative/ 33,000 (approx.) Square- foot Option
Correct Structural, Health, and Safety Problems	The current visitor center would continue to deteriorate as its design cannot be properly maintained in the Yellowstone environment. Seismic stability would not be attained, and risk of building collapse would continue. Asbestos shingle backing would remain. Office workspace would continue to be inaccessible. The alternative would not meet the objectives.	New OFVEC would be designed for the Yellowstone environment. New OFVEC would be designed to withstand earthquakes as rated for Seismic Risk Zone 4. The building would be constructed with non- toxic materials. New OFVEC would provide accessible employee offices. The alternative would meet the objectives.
Environmental Sustainability	Inadequate insulation and heating systems would remain. Building would continue to be energy inefficient. The alternative would not meet the objectives.	New OFVEC would be built to a silver LEED certification, sustainable in design, built using "green" construction materials and techniques, and would be energy efficient. The alternative would meet the objectives.
Compatibility with Historic District	The modern- appearing architecture of the visitor center (Mission 66/ Parkscape style) would continue to be incompatible with the Old Faithful Historic District. The alternative would not meet the objectives.	New OFVEC would fit gracefully into the Old Faithful Historic District and would not detract from or compete with the National Historic Landmark Old Faithful Inn. The alternative would meet the objectives.

Alternative 1: No Action

The NPS would not construct a new visitor education center under this alternative. Use of the existing visitor center would continue without significant modifications; no additional structures would be built. Visitors wanting information would continue to be poorly served. Space for safety, resource protection, and interpretive functions would remain inadequate, as would the space for the cooperating association bookstore. There would continue to be no area for interpretive exhibits in the visitor center that could enhance the visitors' understanding of Yellowstone's unique hydrothermal resources. Resources would be more vulnerable to damage because there would be limited space for presenting information on resource protection; likewise, there would be no additional space for presentation of visitor safety information. Those needing backcountry permits would continue to be sent to another, difficult- to- find location. Staff would continue to cope with the cramped and insufficient office space that does not meet UFAS or ADA requirements. Periodic maintenance of the buildings would occur, but major renovations would be unlikely. The energy inefficiencies and health hazards of the building and its seismic instability could not be corrected.

Alternative 2 (Preferred Alternative): Construct a New 33,000 Square- Foot (approximate) Old Faithful Visitor Education Center

Under this alternative, the NPS would construct a new 33,000 square- foot (approximate) visitor education center to provide appropriate services and critical information for visitors to Old Faithful and Yellowstone in order for them to have safe, enjoyable, and satisfying experiences and to enhance their understanding and appreciation of park resources and values. The new visitor education center would include adequate orientation space in a 2,750 square- foot (approximate) lobby and 6,700 square feet (approximate) of exhibit space focusing on the hydrothermal features of the park. There would be two auditoriums (one with 200 seats and the other with 100 seats), a classroom, reference library, cooperating association bookstore, backcountry permitting office, public restrooms, and office and administrative spaces within the building.

Approximately 85 percent of all visitors to Yellowstone travel to the Old Faithful area. The current visitor center is totally inadequate in meeting the needs of these visitors. The proposed visitor education center would simply meet those needs, and no increase in staffing levels is anticipated. School groups that already visit the park would have a place to engage in facilitated learning activities to complement their field- learning experiences. Scientists and other hydrothermal experts would have a location for study and program presentation.

The proposed OFVEC would be fully accessible, energy efficient, sustainable in design, and built using "green" construction materials and techniques. The OFVEC would be designed for year-round use, however, the design would allow portions of the building to be closed during winter for energy efficiency purposes. This alternative was developed using the NPS Visitor Center Planning Model, with adjustments for unique circumstances found at Old Faithful, and following extensive value analysis of the project.

The proposed OFVEC would be built on the same location as the current visitor center complex (visitor center, restroom building, two satellite theaters, and plaza), which would be removed (see Figures 2 & 3 below). The location of the visitor education center is important for two reasons.

This location provides visitors with an easily recognizable and accessible facility where they can quickly have their questions answered and also learn more about the park resources they are seeing. And, this location affords the NPS staff the broadest view of Geyser Hill in order to provide for visitor safety and the protection of the hydrothermal resources.

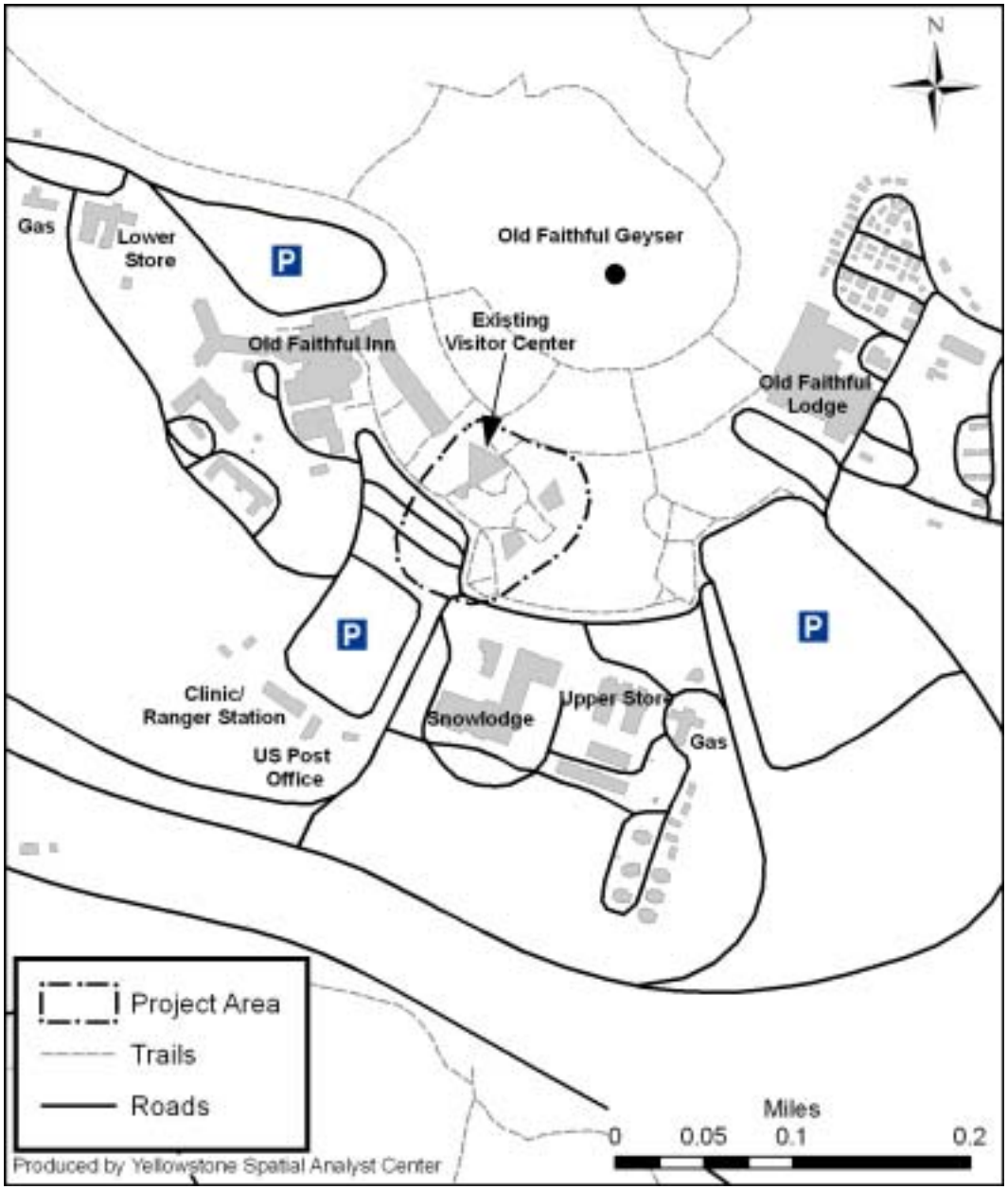

Figure 2: Old Faithful developed area, with project area indicated

Figure 3 below shows the footprint location of the proposed visitor education center in relation to the footprint of the current visitor center complex. As part of this proposed project, the large expanse of concrete surrounding the visitor center complex would be removed. A "softened"

landscaped pedestrian plaza would be redesigned around the OFVEC linking it with other buildings and facilities in the area and would include interpretive, orientation, and safety exhibits along the walkways. Not only would removal of this hardened surface permit the development of more natural- appearing and appealing pathways, it will also allow rain and snowmelt waters to infiltrate the soil, recharging the surficial aquifer.

Figure 3: Footprint of proposed OFVEC (gray) in relation to current visitor center complex

The proposed OFVEC would fit gracefully into the Old Faithful Historic District and would not detract from or compete with the National Historic Landmark Old Faithful Inn. The guiding architectural vision for this project was: "The OFVEC should be as inspiring as its namesake. Its design should be classic and compatible with the historic district it is a part of, yet not overly imitative of the other buildings in the district. It should offer a creative and fresh, yet timeless interpretation of rustic architecture, while incorporating contemporary values of maintainability, "green" construction, and sustainability."

From the beginning of this project, Yellowstone National Park has sought input on the proposed architectural design from the Wyoming SHPO and the Advisory Council. At each stage of the

process, consultation meetings and/or discussions occurred. After the initial building design was prepared in 1999, both agencies raised concerns about the massing, height, and style of the building. Further data collection, review, and consultation resulted in this design being discarded (see "Alternatives Considered but Rejected").

The architects then presented several new design options, one of which, called the "nautilus" design, was chosen to develop more fully. During consultation, the Wyoming SHPO and Advisory Council concurred that this design direction more accurately reflected the historic characteristics of the Old Faithful Historic District. Following the November 2003 value analysis of the project, the size of the building was reduced and other design features were modified, and this revised alternative was further developed (see "Alternatives Considered but Rejected").

In January 2004, using the results of the Visitor Center Planning Model exercise and in preparation for the DAB presentation, Alternative 2, the preferred alternative, was developed. The design of this alternative, the building's general shape and appearance, remain similar to that previously presented to the Wyoming SHPO and the Advisory Council. Consultation with these two agencies will continue as the design details of the proposed OFVEC continue to be developed, and their comments will be solicited as part of this environmental assessment process.

The proposed two- story building has two rustic- style gable wings extending away from the geyser basin in an angle from a circular, "transparent" lobby (see Figure 4 below). The transparency is due to a wall of windows and doors on the parking lot side of the building (south) that allows visitors to flow into the lobby, which has a three- story ceiling and a floor- to- ceiling wall of windows on the geyser basin side of the building (north). The design intent of this proposal is to create a sense of the outdoor environment flowing between the gabled structures and breaking the mass of one large structure into two smaller ones. A battered stone cylinder (part of the air- exchange system) anchors the lobby and generates an organic spiral form (the "nautilus") to stimulate movement around and through the lobby and to add a contemporary look to the building. Because cliff swallows nest on buildings in the Old Faithful area, deterrents to swallow nesting would be designed into the building, particularly under the overhangs.

Figure 4: Proposed Old Faithful Visitor Education Center

A natural swale or gully between the current visitor center and the Old Faithful Inn was filled in sometime in the past (possibly during construction of the current visitor center). Construction of the proposed OFVEC would include removal of this fill material from the swale in order to return the landscape to more natural contours. This action would also allow construction of a lower level in the proposed OFVEC without major excavation. This lower level would house mechanical rooms and storage and would provide delivery access to the building. The entire area around the proposed OFVEC would be appropriately landscaped following construction.

From the beginning of this project, it was a "given" that construction of the OFVEC must not affect the hydrothermal "plumbing" system of Old Faithful Geyser or other features in the Upper Geyser Basin. In order to better understand the Old Faithful hydrothermal system, a field study of subsurface temperatures was proposed to specifically address this issue (see Environmental Consequences- Hydrothermal Resources). The results of this study along with other information have been used by the architects and engineers in designing the building, particularly the footings and other foundational requirements. Because Old Faithful Geyser is known to be affected by seismic events, construction methods (for example, compaction and drilling techniques) would avoid simulating a seismic event. During construction, a qualified geologist/hydrothermal specialist would be on- site at critical points as a monitor.

The proposed building would be sited and designed in accordance with the NPS'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 proposed OFVEC would be designed and built to a "silver certification" for the LEED (Leadership in Energy and Environmental Design) Green Building Rating System™. This is a voluntary national standard for high- performance, sustainable buildings. Not only would the proposed building be energy efficient, but it would also minimize waste, use recycled and reused construction materials, and use nontoxic materials. Yellowstone National Park would encourage all suppliers, permittees, and contractors to follow sustainable practices.

The Old Faithful area, with its maze of roads and parking areas, often confuses visitors, which, in turn, impacts vehicular flow. Pedestrians are disoriented and do not understand where facilities and features are located. Visitors are generally anxious to know when the next eruption of Old Faithful Geyser will occur, and only after that question is answered will they determine their activities in the area. Incorporated into the OFVEC project is a pedestrian flow plan and a geyser prediction system that will enable visitors to understand the area and quickly know the predicted time of the next eruption of Old Faithful Geyser. A vehicular flow study is currently underway and results of that study would eventually be used to redesign roadways and parking areas. A bus loading and unloading zone would be located next to the OFVEC and accessible parking spots would be designated immediately adjacent to the building.

During construction, a temporary visitor center would be located nearby and clearly identified. This temporary facility would be sited in a logical location once construction boundaries are established.

Until the vehicular flow study is completed, a suitable location for a new winter warming hut (currently, the winter warming hut is located in one of the visitor center satellite theaters) would not be determined. Compliance, including public comment, on such a proposal would be completed before a new winter warming hut was built. Temporarily, a portable winter warming

hut would be located near the temporary visitor center. Each winter season, this temporary facility would be brought in until a permanent facility is built.

All construction activities, materials, and equipment would be contained within the construction boundaries. If necessary, additional construction materials would be stored in the government administrative area south of the Grand Loop Road where other such materials are stored. Materials would be brought to the construction site along established park roads during times of low visitor use as is done for all other projects occurring in the park. The contract employees would be housed in the temporary contractors' camp that was sited in the government administrative area for the construction project currently occurring at the Old Faithful Inn. All contractors would be required to take the *Living in Bear Country* class and follow all rules established for the protection of park resources and visitors.

The OFVEC project is being funded by means of a partnership between the NPS and the Yellowstone Park Foundation. In 1999, the Foundation pledged to raise $15 million of the estimated $26 million necessary to construct the new visitor education center and fabricate the new exhibits. At this time, the Foundation expects to reach its pledged goal during 2004. The remaining necessary funds have been requested through the NPS line- item construction program for fiscal year 2006.

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 aesthetically 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 is the environmentally preferred alternative. This alternative would replace the existing inadequate, energy inefficient, historically inappropriate visitor facility with a new building in the same

location. The new visitor education center would provide improved and appropriate visitor services, would incorporate environmental and energy efficient sustainable design, construction, and operational standards, and would improve the visual quality and the historic character of the Old Faithful Historic District.

Alternative 1 does not strike the balance between public safety and enjoyment of Yellowstone National Park and the preservation and interpretation of public resources and features.

Alternatives Considered But Dismissed from Further Analysis

1) During the planning process, park staff considered one alternative site for the Old Faithful Visitor Education Center that was nearer the Old Faithful Lodge and approximately the same distance away from the Old Faithful Geyser. (Because park visitor centers are located near the natural and/or cultural features they are designed to interpret in order to provide a visual link to the resource being interpreted, no sites away from the vicinity of Old Faithful Geyser were considered.) A small grove of trees currently occupies this alternative site.

This site had no advantages over the proposed location, and there were some negative aspects to the site. Views from a visitor center lobby of Geyser Hill would be inadequate for visitor safety and resource protection. Because shade is limited in this area, the team was reluctant to sacrifice the grove of trees for a building site. Additionally, there are now views of the geyser from the Old Faithful Snow Lodge, and a large new building in this location would block those views. Finally, subsequent soils and hydrothermal investigations have shown that there are hydrothermal clays, which are believed to form a cap over circulating thermal waters, near the surface in the area between the visitor center and the Old Faithful Lodge (see Soils section in the Affected Environment).

After considering the advantages and disadvantages of the alternative site, it was dismissed from further consideration.

2) After the initial value analysis exercise in 1999 that defined the appropriate visitor service functions that should be located within the visitor center, a 43,000 square- foot visitor education center was designed to accommodate these functions. (Visitor service functions included information and orientation services, interpretive and educational exhibits, an auditorium for interpretive and education films, a classroom and library, the backcountry permitting office, cooperating association bookstore, public restrooms, and necessary office and storage spaces.)

The architectural design of this building imitated the rustic style of the Norris Geyser Basin Museum. Consultation with the Wyoming SHPO and the Advisory Council resulted in both agencies raising concerns about the massing, height, and style of the building. To address these concerns, the total square footages and building footprints (the ground- level perimeter of a building) of the proposed OFVEC and significant other buildings within the Old Faithful Historic District were compared (see Appendix A). A computer- generated model placing an exact replica of the proposed OFVEC within the historic district was prepared to evaluate how the building "fit" within the landscape. Three- dimensional models of the proposed OFVEC and the Old Faithful Inn were built to scale and placed on an enlarged aerial photo of the area to further evaluate this.

Reviewing this data and considering additional concerns raised by others involved in the partnership project as well as scoping comments from the public, this initial building design was rejected, and the architects were instructed to start again with a new design.

3) Because of the concerns outlined above (in #2) about the design of the visitor education center, the architects presented a new 43,000 square- foot proposal. This design, called "the nautilus," had two rustic- style gable wings extending away from the geyser basin in an angle from a circular, "transparent" lobby. The transparency was due to a wall of windows/doors on the parking lot side of the building that allowed visitors to flow into the lobby, which had a nearly three- story ceiling and a floor- to- ceiling wall of windows on the geyser basin side of the building. The design intent of this proposal was to create a sense of the outdoor environment flowing between the structures and breaking the mass of one large structure into two smaller ones. A battered stone cylinder anchored the lobby and generated an organic spiral form (the "nautilus") to stimulate movement and to add a contemporary look to the building. Visitors could ascend the tower via ramps to a small, windowed room where they could view the geyser basin. Across the ridge top of the east gabled wing, a "widow's walk" would allow visitors outdoor access. During consultation, the Wyoming SHPO and Advisory Council concurred that this design direction more accurately reflected the historic characteristics of the Old Faithful Historic District.

However, following the second value analysis, the square footage needs proposed for the OFVEC were reduced (see #4 below), and this 43,000 square- foot alternative was rejected.

4) A second, more in- depth value analysis was held in November 2003 with NPS and non- NPS experts in the fields of value analysis, museum and visitor center design, sustainable design, architecture, engineering, visitor flow, and visitor management to review the validity of these functions, how the visitor education center space allocations and floor plans met the needs of those functions, and analyze the costs and benefits of various proposed alternatives. This analysis resulted in a 37,700 square- foot visitor education center through a reduction in the square footage of some functions without a loss in effectiveness or efficiency. The building's general shape and appearance remained the same (the "nautilus" design), however, public access to the tower was eliminated and the widow's walk was eliminated. These two changes addressed recognized operational problems that would result from providing fair and controllable public access to these two limited- space areas.

However, after receiving the results of the Visitor Center Planning Model run for the OFVEC project, this alternative was also rejected, and a smaller visitor center design, the preferred alternative, was developed.

AFFECTED ENVIRONMENT

Yellowstone National Park lies in a geologically dynamic region of the northern Rocky Mountains. The park is noted for its geologic features that are the result of volcanism, glaciation, and continued geological processes fueled by a continental hotspot. The park is mainly a volcanic plateau varying in elevation from about 5,300 feet along the Yellowstone River in Montana to 11,360 feet at Eagle Peak along the eastern boundary of the park in Wyoming. Yellowstone is prone to seismic events (approximately 2,000 earthquakes are recorded here each year), which can occur at any time. 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 both east and west from the Continental Divide.

The Old Faithful developed area is in the southwestern portion of Yellowstone National Park (see Figure 5 below). It is one of the park's major developed areas and is operated on a year- round basis. The Old Faithful development provides full- service accommodations, similar to those found in a small town, including meals, overnight lodging, medical services, shopping, gasoline, a post office, and NPS facilities.

Figure 5: Yellowstone National Park

Natural Resources

Soils

Soils in the Old Faithful area are derived from rhyolitic sands and gravels. The resulting soils are moderately coarse- textured, well- graded obsidian sands mixed with silt. Evidence of the region's last glacial activity, about 14,000 years ago, also exists in the area, and glacial till deposits

underlie the geyser basins. In the vicinity of Old Faithful Geyser, sinter platforms and hydrothermally altered rock are buried under the obsidian sands and gravels. The altered rock, or hydrothermal clays, is believed to form a cap over circulating thermal waters. In many areas, sinter covers the hydrothermal clays, but, in some locations in the Upper Geyser Basin, the hydrothermal clays are exposed at the surface.

Soils have been heavily disturbed in the proposed project area from previous development and subsequent human trampling. A large percentage of the project area is currently covered by concrete. An area immediately west of the visitor center was once a natural swale or gully that possibly served as a runoff channel for Old Faithful Geyser. The runoff from the geyser was diverted west and north of the Old Faithful boardwalk many years ago (probably prior to the placement of the old roadway between the geyser and the visitor center). Subsequently, the swale was filled in, probably during the construction of the current visitor center in the early 1970s. It is assumed that this old runoff channel has an armored sinter layer.

Hydrothermal Resources

Yellowstone sits atop the world's largest active volcano, which is the result of a rare continental hotspot. This magma body releases tremendous heat and energy, which, when combined with the abundant water of the region and its geology, results in the hydrothermal features found here. There are four types of hydrothermal features: geysers, hot springs, fumaroles (steam vents), and mudpots. Yellowstone National Park has more than 10,000 of these hydrothermal features, including approximately half of the world's geysers.

Most of the park's geysers are found in the one square mile of the Upper Geyser Basin. The Old Faithful Geyser Group is located in the eastern portion of the basin and contains a lower concentration of hydrothermal features than its neighboring geyser groups, the Geyser Hill Group and the Myriad Group. Interestingly, more than 95 percent of all the thermal waters released from the Old Faithful Group are vented during eruptions of Old Faithful Geyser. With a relatively rapid and predictable recharge time between eruptions, Old Faithful Geyser is a main attraction for millions of visitors to Yellowstone. Since the 1950s, the average interval between eruptions has lengthened, but Old Faithful Geyser is still the most active, large, cone geyser in the world. It is well know that seismic events (earthquakes) can affect Old Faithful Geyser.

Vegetation, including Rare Plants

The proposed OFVEC is located in an area that probably originally supported a lodgepole pine (*Pinus contorta*) forest, the dominant forest cover type in Yellowstone. There is very limited understory of plants due to the poor soil, which contains a high amount of obsidian sand, and the adjacent thermal influences. Most of the trees were removed during the twentieth century. Today, the vegetation in the vicinity of the project area is composed of isolated trees or clumps of trees, some of which have been planted in recent years. Understory herbaceous species are sparse and scattered, consisting mainly of species such as Yellowstone hairy golden- aster (*Heterotheca depressa*), wild buckwheat (*Eriogonum* spp.), elk sedge (*Carex geyeri*), and various grasses.

The project area was surveyed by the park botanist in summer 2001. No plant species listed as federally threatened or endangered nor any plant species of special concern (as listed by the Wyoming Natural Diversity Database, part of the nationwide heritage program initiated by The Nature Conservancy to manage information on rare plant and animal species) were found.

There is a potentially unique variety of wild buckwheat that may be endemic to Yellowstone National Park in the vicinity of the proposed OFVEC. The current extent of Yellowstone sulfur buckwheat (*Eriogonum umbellatum* var. *cladophorum*) in the area was mapped in 2001. Between 20 and 30 individual plants are scattered on fill material between the Old Faithful Visitor Center and the Old Faithful Inn as well as in other disturbed locations of the area, indicating this plant's ability to colonize and persist in disturbed areas. Yellowstone sulfur buckwheat has adapted to life on the edges of thermal areas where it is necessary to have an ability to respond rapidly to local change. It has demonstrated capabilities to colonize areas that have been disturbed by construction in the Old Faithful area.

At least 200 species of non- native plants are known to occur or have occurred in the park, and many of these species are invading natural communities. Most non- native plants are found in disturbed areas such as developments and road corridors. The potential for proliferation of non-native plants is possible with any ground disturbance, including construction.

Wildlife

Yellowstone has 61 species of mammals, 11 species of native fish, 5 species of non- native fish, 6 species of reptiles, 4 species of amphibians, and 319 species of birds. Among the mammal species are seven native ungulates and two bears.

Thermal basins like the Upper Geyser Basin, which includes the Old Faithful area, provide important habitat for wildlife. Large numbers of bison (*Bison bison*) and elk (*Cervus elaphus*) live here year- round. In winter, they take advantage of the warm ground and thin snow cover. During spring and fall, moose (*Alces alces shirasi*) are occasionally seen during the early morning or late afternoon. Mule deer (*Odocoileus hemionus*) are less frequently seen at this elevation. Both black and grizzly bears (*Ursus americanus* and *U. arctos horribilis*, respectively) are seen here, especially during the spring when winter- killed carcasses are available. Coyotes (*Canis latrans*) frequent the area; gray wolves (*Canis lupus*) are rarely seen.

Small mammals seen in the area include voles (*Microtus* spp.), pocket gophers (*Thomomys taloides*), Unita ground squirrels (*Spermophilus armatus*), golden- mantled ground squirrels (*Spermophilus lateralis*), and red squirrels (*Tamiasciurus hudsonicus*). Yellow- bellied marmots (*Marmota flaviventris*) are frequently seen in the rocks behind Grand Geyser. While not often seen, pine marten (*Martes americana*) are also found in the area.

Reptiles and amphibians that are known to occur or that may occur in the Old Faithful area include the western terrestrial (wandering) garter snake (*Thamnophis elegans vagrans*), rubber boa (*Charina bottae*), blotched tiger salamander (*Ambystoma tigrinum melanostictum*), western (boreal) toad (*Bufo boreas boreas*), Columbia spotted frog (*Rana petiosa*), and western (boreal) chorus frog *(Pseudacris triseriata maculata*). None of these species are known to inhabit the proposed project area.

Yellowstone National Park is home to a wide array of seasonally migrant and year- round resident bird species. Birds commonly seen in the Old Faithful area include the common raven (*Corvus corax*), northern flicker (*Colaptes auratus*), and killdeer (*Charadrius vociferus*). Other birds found in the area include hairy woodpecker (*Dendrocopos villosus*), mountain bluebird (*Sialia curricoides*), gray jay (*Perisoreus canadensis*), Clark's nutcracker (*Nucifraga columbiana*), mountain chickadee (*Parus gambeli*), red- breasted nuthatch (*Sitta canadensis*), dark- eyed junco

(*Junco hyemalis*), brown- headed cowbird (*Molotrus ater*), Cassin's finch (*Carpodacus cassinii*), and red crossbill (*Loxia curvirostra*). Cliff swallows (*Petrochelidon pyrrhonota*) are also in the area and have nested on the current visitor center.

Other wildlife take advantage of the unique microclimates provided by the hydrothermal features in the Old Faithful area. Bacteria and archea live in the runoff channels of hot springs and geysers, providing food for tiny black ephydrid flies, which are, in turn, preyed upon by other animals.

Threatened and Endangered Species

Four species protected under provisions of the Endangered Species Act of 1973 (as amended) are present in Yellowstone National Park. The grizzly bear, Canada lynx (*Lynx canadensis*), and bald eagle (*Haliaeetus leucocephalus*) are classified as threatened. The gray wolf was reintroduced into Yellowstone in 1995 and 1996 and is classified as a nonessential experimental population. Although additional flexibility for management of such a population is allowed under the final rule and special regulations promulgated in 1994 (59 FR 60252), wolves that are part of the experimental population are considered a threatened species on NPS or National Wildlife Refuge system lands.

The whooping crane (*Grus americanus*), listed as endangered, is no longer considered a species found in Yellowstone National Park. The USFWS removed the peregrine falcon (*Falco peregrinus*) from the list of threatened and endangered species in 1999. However, this species is still protected from unauthorized killing, possession, transportation, and importation by the Migratory Bird Treaty Act. Also, federal requirements for de- listing the peregrine falcon mandated that populations be monitored for 12 years and that data on at least two generations be collected in order to ensure the population stability of the 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 to 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 658 bears (with an estimated 416 bears within the boundaries of the park). Grizzly bears range across more than 8.5 million acres within the greater Yellowstone ecosystem; approximately 26 percent of this range (2.2 million acres) is within Yellowstone National Park. 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 carcasses in the hydrothermal areas of the park. The reproductive success of female grizzlies is at least partly dependent on the availability of carrion on spring ranges (Mealey 1975, Picton 1978). Carcass use

gives way to feeding on 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 three times each decade (Mattson and Jonkel 1990). Grizzlies are opportunistic feeders; in the years of low whitebark pine nut production or low carcass availability, they will seek out other (usually lower- quality) foods. Such years may bring grizzlies more into conflict with humans.

While there are a variety of different habitat types within 3 miles of Old Faithful that provide bears with a range of foraging opportunities during the spring, summer, and fall, most grizzly bear use of the Old Faithful area occurs during spring (Gunther, et al. 1998a). At this time bears are feeding on winter- killed carcasses after emerging from hibernation. Carcass- feeding activity is usually completed by mid- May. When all park developments are compared for the level of grizzly and black bear activity, habitat quality, cub production, bear/human conflicts, and bear management actions, the Old Faithful area ranks below many other park developments (Gunther, et al. 1998a).

Developments within or adjacent to bear habitat can influence bear populations both directly and indirectly. Direct impacts include human- caused bear mortality from management removal of habituated bears. Indirect impacts include reduction of habitat effectiveness by human- caused displacement from high- quality habitats and behavior modification by habituation to humans, both of which may ultimately result in direct removal from the population (Gunther et al. 1998b). 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 non-forested areas (Gunther 1990). Bears generally exhibit the strongest avoidance of occupied front-country human developments (Mattson 1990).

The Old Faithful development itself is designated Management Situation 3 habitat. These habitats encompass developed areas and are managed for regular human use or occupation. Bear/human conflicts are resolved by trapping and translocating the bear. Ungulate carcasses within the developed area are removed.

Canada Lynx

The USFWS listed the Canada lynx as a threatened species in 2000. Lynx are considered rare in the greater Yellowstone area and are believed to use boreal or montane forests. Evidence of lynx in Yellowstone National Park comes from about 216 winter tracking surveys (conducted during the last three winters and covering 1,043 total miles), from 118 lynx hair- snare transects deployed parkwide during the last three summers, and from historic sightings. Parkwide, only three lynx sightings have been reported by visitors in the last three years. Surveys have documented one possible, two probables, and two definite cases of lynx presence, including a female accompanied by a kitten. Population numbers are unknown. Lynx prefer upper elevation coniferous forests in cool, moist vegetation types, particularly those that support abundant snowshoe hares, the primary food source for lynx.

Snow- tracking surveys were conducted parkwide during the winter of 2000- 2001. One possible lynx track was identified near Kepler Cascades (3 miles east of the Old Faithful area) by a reliable

observer, but no other surveys were able to verify lynx presence in the area. The proposed project does not occur in a Lynx Analysis Unit.

Bald Eagle

Both resident and migrating bald eagles can be found throughout Yellowstone. Bald eagle nesting sites occur primarily along the margins of lakes and along the shoreline of the larger rivers in the park. The bald eagle management plan for the greater Yellowstone ecosystem has achieved the goals set for establishing a stable bald eagle population in the park. A total of 24 eaglets fledged from 32 active nests during 2003. This equals the highest number of fledged eaglets and exceeds the number of active nests ever recorded for Yellowstone National Park. Bald eagles may occasionally pass through the Old Faithful area, but they do not typically nest or regularly roost in the Old Faithful developed area, and the area is not considered essential habitat for the species.

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. 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 2004, about 306 wolves live in the greater Yellowstone area, with 174 wolves in 15 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.

While the Old Faithful area is part of both the Nez Perce and Biscuit Basin wolf pack territories, humans rarely see them. It is probable that the wolves avoid the developed area.

Visual Resources, including Lightscapes

Visual quality affects both visitor enjoyment and perception of Yellowstone. The unique natural setting and the historic buildings of the Old Faithful developed area have delighted park visitors for decades. However, this is a highly developed area that appears to many to be like a small town. Congestion during the summer months can be problematic.

Yellowstone strives to preserve its naturally dark nighttime skies, a valuable park resource. In developed areas, there is a delicate balance between providing the appropriate amount and level of human- generated light for the safety of visitors and staff and the protection of the dark night skies. Human vision is least effective when extreme lighting contrasts are presented (for example, when very bright areas transition to very dark areas), and these situations are avoided/corrected in developed areas.

Historic Resources, including the Cultural Landscape

The National Historic Preservation Act, as amended in 1992 (16 USC 470 *et seq*.), and the National Environmental Policy Act, as well as the NPS's Director's Order- 28, *Cultural Resource Management Guideline (*NPS 1997*), Management Policies* (NPS 2001a), and Director's Order- 12, *Conservation Planning, Environmental Impact Analysis and Decision- making* (NPS 2001b), require the consideration of impacts on cultural resources listed in, or eligible for listing in, the National Register of Historic Places (National Register). 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 NPS, the Advisory Council, and the National Conference of State Historic Preservation Officers. This document will be submitted to the Wyoming SHPO and the Advisory Council for review and comment.

There are six historic districts within Yellowstone, including Old Faithful, Lake Fish Hatchery, Roosevelt Lodge, Mammoth Hot Springs, North Entrance Road, and the Grand Loop Road. Fort Yellowstone was recently named a National Historic Landmark District. Yellowstone has 955 historic buildings and structures on the List of Classified Structures; of these, 371 are listed in 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 Old Faithful Historic District is dominated by the Old Faithful Inn. Other important buildings in the district include the Old Faithful Lodge, the Upper and Lower Hamilton Stores, and the Upper and Lower Service Stations. Most of these buildings are of a similar architectural style as the Inn, which was designed by Robert C. Reamer and built in 1903- 1904. The Old Faithful Inn was the first established form of accommodation for guests in the Old Faithful area. It was followed in the 1920s by the Old Faithful Lodge, built to meet the needs of the middle-income tourist who mainly traveled to the park by automobile. Further development of cabins and support buildings continued through the 1940s.

The Old Faithful Inn is one of the premier rustic structures in the country and greatly influenced American architecture, particularly park architecture. Through the use of natural materials, including native logs and stone, the architectural style represents the idea of enhancing rather than detracting from the spirit of the wilderness. At the same time, the amenities offered at the grand hotel were modern and comfortable, creating a feeling of high- style rusticity for the wealthy tourists of the era.

The current Old Faithful Visitor Center and associated buildings are within the boundary of the Old Faithful Historic District, but were constructed during the Mission 66/Parkscape era. Consequently, a determination of eligibility to the National Register was prepared for the complex. The Wyoming SHPO concurred with the NPS determination that this complex is eligible for listing. However, because the Wyoming SHPO supports demolition of the current visitor center complex and replacement with a structure that is more compatible with the Old Faithful Historic District, a Memorandum of Agreement among the NPS, Wyoming SHPO, and the Advisory Council was prepared and signed that details the documentation that will be prepared prior to the demolition of the structures (see Appendix C).

According to the National Park Service's *Cultural Resource Management Guideline* (NPS 1997), a cultural landscape is ". . . a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use, reflecting cultural values and traditions." Cultural landscapes provide a visual chronicle of an area's human history. Human developments may occur spontaneously or formally, such as for a historic designed landscape.

A draft Cultural Landscape Inventory was begun in 1998 and indicates an evolving cultural landscape in the Old Faithful area. The inventory is based on the National Register of Historic Places nomination for the Old Faithful Historic District, which identifies three distinct units of development in the district with the oldest buildings in the Old Faithful Inn area followed by those in the Old Faithful Lodge area. The most recent construction is concentrated around the Old Faithful Snow Lodge.

Around and between the Inn and Lodge and near Old Faithful Geyser, the cultural landscape features remain intact. The features include the spatial organization of uses, most original structures, parking areas, general circulation patterns, and views of Old Faithful Geyser and Geyser Hill. The relationship between Geyser Hill, the Firehole River, and the early structures has remained unchanged since 1903. Although the historic Upper Geyser Basin Museum was replaced in 1972 by the current, contemporary visitor center, its location in relation to the Inn, the Lodge, and the circulation paths around the geyser area has remained unchanged (pedestrian circulation has replaced automobile circulation in this area). A visitor center has long been a part of this landscape.

Visitor Use and Experience

People from around the world come to Yellowstone each year to experience its wonders. Approximately 85 percent of these park visitors come to the Old Faithful area. Visitation is highly seasonal. June, July, and August are the months of highest use, with 50 percent of the park's visitors 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 6 percent of the overall visitation, totaling between 113,000 and 140,000 in recent years. In 2003, the park received 3,019,376 recreational visits.

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 about half of them coming from Canada; Germany contributes the second largest number. About half of the people coming through Yellowstone's entrances are repeat visitors (Littlejohn, Dolsen, and Machlis 1990).

Yellowstone National Park, in its *Long- Range Interpretive Plan* (NPS 2000), established a number of visitor experience goals that the park would like to be available to visitors. These, in part, include:

- to experience the essence of the park's wild nature;
- to behave in ways that do not hurt themselves or park resources;

- to successfully plan their visits and orient themselves to facilities, attractions, features, and experiences;
- to experience programs, media, and facilities that enhance their educational experiences;
- to understand the park's significance; and,
- to enjoy themselves, have memorable experiences, and go home feeling enriched.

The NPS operates visitor centers to provide central locations where visitors can obtain general information, orientation, and interpretive and educational information about the park, its resources, and visitor services.

ENVIRONMENTAL CONSEQUENCES

Overview

The National Environmental Policy Act (NEPA) of 1969 (42 USC 4321 et seq.) 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 visitor education center at Old Faithful, 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 NPS and provided by other agencies. Expected impacts are described for both alternatives.

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, require assessment of cumulative impacts in the decision- making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non- federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the No Action and Preferred alternatives.

Cumulative impacts were determined by combining the impacts of the Preferred Alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Yellowstone National Park, and, if applicable, the surrounding region. The geographic scope for this analysis includes elements mostly within the park's southwestern corner while the temporal scope includes projects within a range of approximately ten years. The following projects were identified for the purpose of conducting the cumulative effects analysis, listed from past to future:

Within the Old Faithful developed area, a number of projects have been completed, are ongoing or scheduled to begin, or are anticipated. The emphasis of these projects is to replace, repair, and rehabilitate existing facilities that are approaching the end of their useful service life. Any new

facilities are concentrated within the existing developed area(s) to minimize the creation of new, isolated developments. Although some commitment of previously undisturbed resources within the developed area(s) is inevitable, many of the projects undertaken involve the removal of existing development and the revegetation of other human- activity scars.

In order to meet capacity needs and to improve treatment capabilities and meet current wastewater standards, a new sewage treatment plant for the Old Faithful area was completed in 2002. Sewage treatment lines within the development are replaced as necessary. Additionally, a new water line from the Old Faithful water tank (above the administrative area) to the developed area was completed in summer 2004 for the purpose of improving fire protection.

As part of the Yellowstone Employee Housing Plan, replacement of deteriorated employee trailer housing within the Old Faithful administrative area began in 2001. To date, a duplex and a four-plex have been built for NPS employees, and a 14- plex has been built for concessioner employees. An eight- plex for NPS employees is scheduled for construction in 2005. Other housing units will be replaced as funding becomes available.

Renovation of the Old House portion of Old Faithful Inn began in fall 2004 and will continue through 2007, in large part during the winter. Renovation is mostly interior and includes seismic strengthening of the structure and its foundation. Utility upgrades of the electrical, mechanical, and life safety systems will also occur. A new roof will be installed on the Old House in summer 2005.

Yellowstone continues with its road reconstruction projects. These projects replace the poor-quality, 20- foot wide roads with a high- quality, 30- foot roadbed. Road improvements generally follow existing alignments. If new alignments are chosen (for example, in the Madison to Norris road project), the former road alignment is removed and the area revegetated. Improvement of the Grand Loop Road into the Old Faithful area from both directions has been completed (Biscuit Basin to West Thumb in 1991 and Biscuit Basin to Madison in 1997).

A circulation study examining all the roads within the Old Faithful developed area, including the overpass access off of the Grand Loop Road, will be completed in 2005. Following that study, proposals for improved circulation and siting of facilities within the development (e.g., Haynes photo shop scheduled for removal from in front of the Snow Lodge and the replacement winter warming hut) would be presented in an EA or have other appropriate compliance completed.

Road improvement in other parts of Yellowstone continues. During the years that the OFVEC project would be under construction, 2006- 2008, the following ongoing road projects would be underway: Chittenden parking area to Tower (Dunraven Road), the re- alignment portion of the Madison- to- Norris Road, and the Canyon Rim Drives. It is possible that the segment of the Norris- to- Golden Gate Road between Norris and Obsidian Cliff could begin in 2007 if funding is approved.

In November 2004, a temporary winter use plan was approved for Yellowstone. The plan provides that park resources are protected and park visitors have a range of appropriate winter recreational opportunities for up to three years while a new long- term winter use analysis is being prepared. Under the plan, 720 snowmobiles per day will be allowed to enter Yellowstone, all led by commercial guides. All snowmobiles in Yellowstone National

Park will be required to meet NPS Best Available Technology (BAT) requirements (4- stroke engines) in order to reduce hydrocarbon emissions by at least 90 percent, carbon monoxide emissions by 70 percent, and sound levels at full throttle to no more than 73 decibels.

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 three 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, *Management Policies 2001* (NPS 2001a) 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 NPS 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 NPS the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS 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 NPS 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

Impact Topic	Alternative 1: No Action	Alternative 2: Preferred Alternative /33,000 (approx.) Square- foot Option
Soils	Negligible to minor, direct impacts	There would be minor, direct long- term impacts to about 3.3 acres of previously disturbed soil. The area disturbed would be restored and re- vegetated and/or landscaped, a beneficial impact. Removal of fill in adjacent swale and restoration of the land to natural grade would be beneficial.
Hydrothermal Resources	Negligible impacts	Any adverse impacts would be negligible to minor, indirect, and short- term
Vegetation, including Rare Plants	Negligible impacts	Minor, direct, short- term impacts to less than one acre of previously disturbed vegetation
Wildlife	Negligible impacts	Minor, localized and direct, short term displacement of wildlife could occur during construction
Threatened and Endangered Species	Negligible impacts	This alternative would have minor impacts upon and may affect, but is not likely to adversely affect grizzly bears. There would be negligible/no effects on bald eagles, wolves, and Canada lynx.
Visual Quality, including Lightscapes	Minor, direct, long- term impacts to visual quality would continue	This alternative would have moderate, beneficial, direct, and long- term effects.
Historic Resources	Long- term, minor, and direct impacts due to building deterioration	Demolition of 1972 visitor center would result in an adverse effect to historic properties, but impacts mitigated through MOA with WY SHPO. Appropriately designed facility for historic district would result in moderate, direct, long- term, and beneficial effects.
Visitor Use and Experience	Moderate impacts due to continued visitor frustrations, delays, and NPS's inability to provide adequate safety and educational information	Long- term, moderate, direct benefits to visitors through improved visitor experience. Short- term but minor dust, confusion, & construction- related problems.

Soils

Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to soils were derived from the available soils information 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: Soils would not be affected or the effects on soils would not be detectable.

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

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

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

Impacts of Alternative 1 on Soils

Impact Analysis

Operation of the current Old Faithful Visitor Center would continue under this alternative. Visitors would occasionally walk off the sidewalks, boardwalks, and trails in the vicinity of the visitor center and across bare soils resulting in negligible to minor effects. Soil disturbance could also occur during any necessary infrastructure maintenance; however effects would be negligible to minor following rehabilitation/restoration efforts.

Cumulative Impacts

Construction projects would continue in the Old Faithful area and the southwestern portion of Yellowstone National Park, disturbing various amounts of soils and causing minor amounts of erosion. Rehabilitation efforts and erosion control are standard practice. Additionally, visitors would continue to travel off- trail and off- boardwalk to some extent. When added to other

projects occurring in the area, continued operation of the Old Faithful Visitor Center would cause negligible to minor cumulative impacts 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 to minor amount of soil disturbance 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 NPS planning documents, there would be no impairment of the park's resources or values.

Impacts of Alternative 2 on Soils

Impact Analysis

During construction and site work, a total of about 3.8 acres of previously disturbed soil would be impacted by removal, grading, and re- contouring. The new OFVEC would occupy approximately 0.5 acres, and much of the current concrete walkways in the immediate vicinity of the visitor center would be removed and the area re- landscaped as part of a new pedestrian walkway system. The removal of this hardened surface would permit the development of more natural- appearing pathways that would also allow rain and snowmelt waters to infiltrate the soil. Fill material deposited in the swale (west of the project site) during construction of the current visitor center would be removed, and the area would be restored to its natural grade.

Effects would be localized and direct, minor, long- term, and beneficial. Any topsoil that must be disturbed would be conserved and re- spread on- site after construction during landscaping and revegetation. Excavated material would be stored and either reused on site or , if suitable, at other sites in the park; if excavated materials are not suitable for reuse, they would be disposed of at Mesa Pit (a disposal site within the park) or transported out of the park. Construction equipment would be thoroughly pressure washed and checked for cleanliness before entering the park. Appropriate erosion control devices would be used during construction to control any runoff.

Any excavations necessary for footings or other support structures or utilities and for the removal of fill material in the natural swale to the west of the site would not disturb the layer of hydrothermally altered clays in the subsurface in order to avoid forming heat sinks.

Cumulative Impacts

Construction projects would continue in the Old Faithful area and in the southwestern portion of Yellowstone National Park, disturbing various amounts of soils and causing minor amounts of erosion. Rehabilitation efforts and erosion control are standard practice. Additionally, visitors would continue to travel off- trail and off- boardwalk to some extent. When added to other projects occurring in the area, construction of a new OFVEC would cause minor cumulative impacts to soils.

Conclusion

The effects of Alternative 2 on soils would be localized and direct, minor, long- term, and beneficial. When combined with other past, present, and foreseeable future actions that would result in impacts to soils, this alternative would contribute a minor amount of soil disturbance 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 NPS planning documents, there would be no impairment of the park's resources or values.

Hydrothermal Resources

Methodology and Intensity Thresholds

There are four types of hydrothermal features: geysers, hot springs, fumaroles, and mudpots. Analyses of the potential intensity of impacts to hydrothermal features were derived from information on specific hydrothermal features (temperature, chemistry, flow rates, eruption intervals, photographs), information on hydrothermal basins, and park staff's past observations of the effects of both visitor use and construction activities on hydrothermal features.

Hydrothermal features in Yellowstone are divided into five categories:

- features that are culturally significant (e.g., Old Faithful Geyser, Morning Glory Pool, Steamboat Geyser),
- features that are found within developed/boardwalked areas (e.g., Biscuit Basin, West Thumb Geyser Basin, Upper Geyser Basin),
- features that are scientifically notable (e.g., superheated features or features important to microbial researchers),
- features that are found in undeveloped areas (e.g., backcountry hydrothermal features such those found in Shoshone Geyser Basin or Pocket Basin), and
- unnamed, low- flow, low- temperature thermal seeps (features with no defined vent but having slow, diffused movement of water through cracks or soil).

The first four categories were considered when evaluating the thresholds of change to hydrothermal features for this project. The fifth category, thermal seeps, is not considered when evaluating the thresholds of change unless the seep's flow route and/or the water temperature is interconnected and integral to a larger nearby system and/or the impacts to the seep would affect nearby features that are in other categories.

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

Negligible: Hydrothermal features would not be affected or the impact would cause insignificant physical disturbance (there would be no effect upon the temperature, periodicity of eruption, or volume of thermal water flow).

Minor: Effects to hydrothermal features would **be** slight but measurable. Eruption intervals, thermal water temperature, and/or thermal water flow may change slightly due to disturbance but would return to baseline values within one day. Mitigation measures proposed to offset adverse effects would include measures to ensure that the hydrothermal feature(s) is protected.

Moderate: Effects to hydrothermal features would be measurable and would last for more than one day. Eruption intervals, thermal water temperature, and/or thermal water flow could change for a number of days but would be expected to return to baseline values. Mitigation measures proposed to offset adverse effects would be extensive.

Major: Effects are readily apparent for either a single thermal feature or a group of features (a thermal system) and are long- term. Eruption intervals, water temperature, and/or the volume of thermal water could increase or decrease, and/or new thermal features could be created at project areas. Mitigation measures proposed to offset adverse effects would be extensive and success would not be assured.

Impacts of Alternative 1 on Hydrothermal Resources

Impact Analysis

Operation of the current Old Faithful Visitor Center would continue under this alternative. Visitors would occasionally walk off the boardwalks or trails into hydrothermally sensitive areas, however, except in rare instances or in the case of vandalism, disturbance to hydrothermal resources would be negligible.

Cumulative Impacts

Construction projects would continue in the Old Faithful area and the southwestern portion of Yellowstone National Park, but would be strictly controlled in order to prevent disturbance to hydrothermal resources. Similarly, visitors would travel off- trail and off- boardwalk to some extent. When added to other projects in the area, continued operation of the Old Faithful Visitor Center would cause negligible cumulative impacts to hydrothermal resources.

Conclusion

When combined with other past, present, and foreseeable future actions that would result in impacts to hydrothermal resources, this alternative would contribute a negligible amount of impact 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 NPS planning documents, there would be no impairment of the park's resources or values.

Impacts of Alternative 2 on Hydrothermal Resources

Impact Analysis

Hydrothermal activity in Yellowstone's geyser basins is not static, and change can occur at any time. From the beginning of this project, it was a "given" that construction of the OFVEC must not affect the hydrothermal "plumbing" system of Old Faithful Geyser or other features in the Upper Geyser Basin. In order to better understand the Old Faithful hydrothermal system, a field study of subsurface temperatures was proposed to specifically address this issue.

Subsurface temperature data, when properly collected and analyzed, can be used to both qualify and quantify the movement of groundwater. By measuring ground temperature at a standard depth, shallow movement of hydrothermal fluids contributing to Old Faithful Geyser should be discernable. In fall 2002, 24 temperature loggers were installed to a standard depth (3 feet) in a grid pattern across the general area proposed for construction. Data has been continuously collected (every 6 minutes) since that time, and analysis of that data does not indicate any movement of hydrothermal fluids or any significant shallow ground water flow in the area proposed for construction (Heasler 2004). However, it is recognized that this natural system could change unexpectedly, consequently, the temperature loggers would remain in place until construction activities necessitate their removal, and some temperature loggers would remain in place throughout construction.

Additionally, in order to ensure there would be negligible to minor impacts to the area's subsurface resources and to ensure that the OFVEC does not create any unintended heat flow/heat trapping problems, park and other appropriate scientists would consult with the architects and engineers during the design of the footings and other foundational requirements of the OFVEC and necessary utility lines. Thermal barriers (or moisture barriers) would not be used as a ground layer under the building's foundation in order to avoid creating heat buildups and extreme condensation.

In order to allow rain water and snowmelt to seep into the ground more naturally, the hardened surface would be significantly reduced. The current visitor center complex covers approximately 60,000 square feet of the ground's surface with buildings and/or concrete walkways while the footprint of the new facility and associated walkways would cover approximately 14,000 square feet of the ground's surface (the walkways would be composed of a permeable material). By allowing the rain water and snowmelt to seep back into the ground, near- subsurface waters would be replenished and impacts to the hydrothermal basin from construction lessened.

Because Old Faithful Geyser is known to be affected by seismic events, appropriate methods of construction (for example, compaction and drilling techniques must be specialized to avoid simulating a seismic event) would be discussed with scientists and then used. During construction, monitoring by a qualified geologist/hydrothermal specialist would occur.

Because of these efforts, any adverse impacts to hydrothermal resources would be negligible to minor, indirect, and short- term.

Cumulative Impacts

Construction projects would continue in the Old Faithful area and in the southwestern portion of Yellowstone National Park, but would be strictly controlled in order to prevent disturbance to hydrothermal resources. Similarly, visitors would travel off- trail or off- boardwalk to some extent. When added to other projects in the area, construction of a new OFVEC would cause negligible to minor cumulative impacts to hydrothermal resources.

Conclusion

Any adverse effects of Alternative 2 on hydrothermal resources would be negligible to minor, indirect, and short- term. When combined with other past, present, and foreseeable future actions that would result in adverse impacts to hydrothermal resource, this alternative would contribute a negligible to minor amount of impact 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 NPS planning documents, there would be no impairment of the park's resources or values.

Vegetation, including Rare Plants

Methodology and Intensity Thresholds

Park staff performed an on- site survey for rare plants (species of special concern), and one potentially rare plant was identified within the proposed project area. Additionally, available information on park native vegetation and unique plant communities was used to analyze the effects of the alternatives.

Negligible:	No rare plant species or uncommon plant communities would be affected. Individual native plants might be affected, but impacts would be localized, short- term, and of no consequence to the species.
Minor:	Native vegetation would be affected, but impacts would occur in a relatively minor portion of the species' occurrence(s) within the park. Mitigation measures to offset adverse effects would be proposed. Rare plants or uncommon plant communities could be present and individual plants could be affected, but proposed mitigation measures to avoid adverse impacts to the species or community would be effective.
Moderate:	A sizable segment of native vegetation within the park would be affected, and proposed mitigation measures would be extensive. Rare plant species or uncommon plant communities could be affected, and proposed mitigation measures to offset adverse effects could be extensive.
Major:	Effects on native vegetation within the park, potentially including rare plants or uncommon plant communities would be extensive and long-term. Proposed mitigation measures to offset the adverse effects would

be extensive, and success of the mitigation measures would not be guaranteed.

Impacts of Alternative 1 on Vegetation, including Rare Plants

Impact Analysis

Continued operation of the current Old Faithful Visitor Center would have a negligible impact on vegetation. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur. A very small amount of trampling of vegetation might occur, but generally visitors are required to travel on established paths and boardwalks. Effects from continued visitor center operation on vegetation would be negligible.

Cumulative Impacts

Construction projects in the Old Faithful area and southwestern part of Yellowstone would continue. These projects would have varying effects on plant species and vegetation in general. Within Yellowstone, all projects must undergo a rare plant inventory like that done at this project site. All Yellowstone projects must avoid moderate or major impacts to rare plants. When added to other projects, Alternative 1 would have a negligible cumulative 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 to 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 NPS planning documents, there would be no impairment of the park's resources or values.

Impacts of Alternative 2 on Vegetation, including Rare Plants

Impact Analysis

The Old Faithful area has been intensively developed and has isolated trees or clumps of trees, with a few herbaceous species in the understory. The proposed project would disturb 3.8 acres of ground, the majority of which is currently covered with concrete walkways or structures. Less than one acre is currently not covered by buildings or concrete walkways. Open ground is dominated by obsidian sand with an occasional individual herbaceous plant. During construction, any trees within the construction zone would be protected.

Yellowstone sulfur buckwheat, a rare species growing on disturbed soils within the project area, would be remapped prior to construction activities, and seeds would be collected for redistribution during revegetation following completion of the project. Individual plants that would be eliminated by construction activities would be re- located.

The potential for proliferation of non- native plants is possible with any ground disturbance, and the potential for spreading non- native plant species during construction operations is a concern. Contractors would be required to adhere to proper construction techniques and

precautions, including washing of equipment before entering the park in order to eliminate any non- native plant seeds.

After construction activities are completed, revegetation with native plant materials would return disturbed areas to a more natural state. Reclamation and revegetation efforts would follow Yellowstone's policy on vegetation management for construction (see Appendix B), which also includes procedures for long- term management of non- native vegetation. Plant species used during reclamation would reflect the vegetation native and typical to the area. Because the project area would be revegetated, the effects on vegetation would be localized and direct, short- term, and minor.

Cumulative Impacts

Construction projects in the Old Faithful area and southwestern part of Yellowstone would continue. These projects would have a varying effect on plants and vegetation. Within Yellowstone, all projects must undergo the rare plant inventory like that done at this project's site. All Yellowstone projects must avoid moderate or major impacts on rare plants. Because the project would occur in a previously disturbed location and because revegetation/re-landscaping would occur, this alternative, when added to other projects occurring in the area, would have a minor cumulative effect on vegetation.

Conclusion

Impacts on vegetation would be localized and direct, short- term, and 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 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 NPS planning documents, there would be no impairment of the park's resources or values.

Wildlife

Methodology and Intensity Thresholds

All available information on known wildlife was compiled. Where possible, map locations of sensitive species sightings in the Old Faithful area were reviewed. 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 below the level of detection.

Minor: Effects to wildlife would be detectable, although the effects would be localized, short- term, and of little consequence to the species' population. Mitigation measures to offset adverse effects would be proposed.

Moderate: Effects to wildlife would be readily detectable, localized but long-term, with consequences potentially at the population level. Mitigation measures proposed to offset adverse effects would be extensive.

Major: Effects to wildlife would be obvious, long- term, and would have substantial consequences to the wildlife population(s) in the park. Mitigation measures proposed to offset adverse effects would be extensive.

Impacts of Alternative 1 on Wildlife

Impact Analysis

Continued operation of the Old Faithful Visitor Center would have a negligible effect on wildlife. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur. While wildlife such as bison, small mammals, and some birds occur within the project area with regularity, many wildlife species avoid the area because of the intense human activity within this major developed area. Effects from continued visitor center operation on wildlife would be negligible.

Cumulative Impacts

Construction projects in the Old Faithful area and southwestern part of Yellowstone would continue to 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 visitor center operation has a negligible effect on park wildlife; continued operation of the visitor center would have a negligible cumulative 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 NPS 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 localized and direct, short- term, and minor impacts to park wildlife. The species that use this area could be temporarily displaced by construction activity and equipment, but they would be expected to return following completion of the project. The NPS expects no increase in wildlife mortalities in this area because all construction activities would be short- term (temporary) and confined to the immediate project area. No effects on Neotropical migratory birds would be 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

Construction projects in the Old Faithful area and southwestern part of Yellowstone would continue to occur. The majority of projects are replacements of existing roads or structures. Each project's effects on wildlife must be evaluated independently and cumulatively. All projects must minimize and, if needed, mitigate their effects on wildlife. Because this project would replace an existing structure in the same location, when added to others occurring in the area, it would have a minor, short- term cumulative effect on wildlife.

Conclusion

When combined with other past, present, and foreseeable future actions that would result in impacts to wildlife, the effects of this alternative would be localized and direct, short- term, and 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 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 NPS planning documents, there would be no impairment of the park's resources or values.

Threatened and Endangered Species

Methodology and Intensity Thresholds

Yellowstone National Park biologists familiar with each of the threatened and endangered species present in Yellowstone were consulted for their knowledge and opinion on potential project impacts. These experts consulted records of threatened and endangered species sightings within three miles of the Old Faithful development, historic records of sightings, and their detailed knowledge of the life habits of the species in question. The evaluation of effects included direct, indirect, interrelated, interdependent, and cumulative impacts as defined by the Endangered Species Act (ESA).

Consultation with the U.S. Fish and Wildlife Service (USFWS) will occur for this proposed project. During consultation (called §7 Consultation), any mitigation proposed by the park for impacts to threatened or endangered species would include avoidance, minimization, and conservation measures as defined by the ESA.

The thresholds of change for the intensity of impacts to threatened and endangered species are defined as follows:

Negligible:	No federally listed species or its proposed or designated critical habitat would be affected. A "negligible effect" corresponds to a "no effect" determination by the park for §7, ESA purposes. Informal consultation with the USFWS might occur, but would not be required.
Minor:	Effects are either (1) insignificant, discountable, or beneficial for individual members of the species, or (2) effects are localized,

temporary, and of little negative consequence to individuals of the species, particularly for effects that relate to human disturbance or habitat modification affecting breeding, sheltering, or feeding of individuals. In situation #2, given implementation of mitigation (conservation) measures proposed by the park, a "minor effect" corresponds to a determination by the park of "may affect, but not likely to adversely affect" the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes. The USFWS must concur with this determination during consultation.

Moderate: Effects are readily detectable, localized, and are often long- term in nature. A "moderate" effect corresponds to a determination by the park of "may affect, likely to adversely affect" the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes and requires formal consultation with the USFWS. Mitigation resulting from consultation would include conservation measures proposed by the park and terms and conditions required by the USFWS to avoid and minimize the adverse effects to individuals that are certain to occur.

Major: Effects are readily detectable at the population level and are long-term in nature. A "major effect" corresponds to a determination by the park of "may affect, likely to adversely affect" the species (or adversely modify proposed or designated critical habitat) for §7, ESA purposes and requires formal consultation with the USFWS. Numerous mitigation (conservation) measures proposed by the park and terms and conditions required by the USFWS would result in significant changes to the project in order to avoid and reduce the adverse impacts to the species. However, if it is determined that the project (even after implementing the avoidance, minimization, and conservation measures) would jeopardize the continued existence of the species, the USFWS could issue reasonable and prudent alternatives to the project.

Impacts of Alternative 1 on Threatened and Endangered Species

Impact Analysis

Continued operation of the Old Faithful Visitor Center would result in negligible effects ("no effect") on the four threatened or endangered species (grizzly bear, lynx, bald eagle, and wolf) 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 frequent human activity near this major park development.

Cumulative Impacts

Continuing construction projects in the Old Faithful area and southwestern part of 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 park endangered species must be mitigated. The USFWS reviews each project to determine whether

it would affect the four species. Current visitor center operation has a negligible effect ("no effect") on threatened and endangered species; continued operation of the facility would be expected to have a similar negligible cumulative effect ("no effect") on threatened and endangered species.

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 ("no effect") 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 NPS 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.

Grizzly Bear. Because the proposed OFVEC site is on the existing visitor center site in the midst of the Old Faithful developed area, grizzlies already avoid the area. The area is designated Management Situation 3 habitat, which are managed for regular human use or occupation. No increase in human visitation or occupation of the area is expected because of the proposed project.

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 construction site and the contractor housing camp would be strictly enforced to minimize the potential for bears to obtain food.

By confining construction to within the Old Faithful developed area, there would be no loss of grizzly bear habitat. By providing *Living in Bear Country* orientation sessions for construction workers and strictly enforcing management regulations, the potential direct and indirect effects on grizzly bears and would be minimized and minor. While there may be short- term displacement of bears from areas adjacent to the developed area due to construction noise, there would be no long- term impacts. The Old Faithful Visitor Education Center may affect, but is not likely to adversely affect, the grizzly bear.

Canada Lynx. The Old Faithful area does not occur in a Lynx Analysis Unit and few, if any, lynx occur in the area. Because the new visitor education center is well within the Old Faithful development's boundaries, movements of lynx near the project site are not anticipated. While there is always the potential that there could be some direct or indirect impacts to lynx, these impacts are expected to be short- term and negligible. The OFVEC project would have no effect on the Canada lynx.

Bald Eagles. Construction of the OFVEC would have negligible effects on eagles because while the bald eagle may occasionally pass through the Old Faithful developed area, they do not typically nest, regularly roost, or forage there. No eagle nests occur within the vicinity. The area is not considered essential habitat for the eagle. Impacts from this alternative would be negligible for bald eagles. The OFVEC project would have no effect on the bald eagle.

Gray Wolves. While the Old Faithful development is within the territory of the Nez Perce and Biscuit Basin packs, wolves do not use the developed area. Wolves do not den in this area. While there is always the potential that this alternative could have direct or indirect impacts on wolves, any impacts are expected to be short- term and negligible. The OFVEC project would have no effect on the gray wolf.

Cumulative Impacts

Construction projects in the Old Faithful area and the southwestern part of Yellowstone would continue to 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 USFWS reviews each project to determine whether it would affect the four species.

This alternative proposes only to replace an existing facility with a new one on the same site within the midst of a major park development. No increase in visitation to the Old Faithful area is anticipated. None of these four species regularly occur in this developed area of Yellowstone. Therefore, this alternative may have short- term, minor impacts ("may affect, but is not likely to adversely affect") grizzly bears and would have short- term, negligible impacts ("no effect") on bald eagles, Canada lynx, or gray wolves.

Conclusion

The impacts of this alternative on the four threatened and endangered species present in Yellowstone would be direct, indirect, and short- term. The impacts on lynx, bald eagles, and wolves would be negligible ("no effect"). The impacts on bears would be minor ("may affect, but not likely to adversely affect"). 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 or 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 NPS planning documents, there would be no impairment of the park's resources or values.

Visual Quality, including Lightscapes

Methodology and Intensity Thresholds

Analyses of the potential intensity of impacts to the visual quality of the landscape were derived from the available information on viewsheds and lightscapes (the impact of lighting on the night sky) in the Old Faithful area and park staff's past observations of the effects on visual quality and

lightscapes 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 the visual quality of the landscape, including nighttime lighting, would result or any changes would be below the level of detection.

Minor: Effects on the visual quality of the landscape, including nighttime lighting, would be detectable, but the effects would be small, localized, and temporary. Mitigation measures (including the use of full- cutoff lighting fixtures) would be proposed to offset any adverse impacts.

Moderate: Effects on the visual quality of the landscape would be readily apparent. Such effects would be long- term but localized within the area. Mitigation measures proposed to offset adverse effects would be extensive.

Major: Effects on the visual quality of the landscape would be obvious, long- term, and noticeable throughout the immediate area. The visual quality of the park's landscape would be substantially affected. Mitigation measures proposed to offset adverse effects would be extensive.

Impacts of Alternative 1 on Visual Quality, including Lightscapes

Impact Analysis

Continued operation of the Old Faithful Visitor Center would result in minor effects on visual quality in that area. The Old Faithful area is a highly developed area, appearing to many to be like a small town, however, most visitors recognize that the architectural style of the current visitor center seems out- of- place in the Old Faithful Historic District. Other than routine maintenance, repair, and upkeep activities, no disturbance would occur, and such work would have little, if any, effect on viewsheds. New, more historically appropriate lighting fixtures that are designed to protect Yellowstone's nighttime skies are being installed in the Old Faithful area in 2004 as part of a special grant to the park, thus enhancing the area's nighttime lighting.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on visual quality and impact on night skies must be independently and collectively evaluated. The National Park Service fully recognizes the importance of preserving Yellowstone's scenic views and dark nighttime skies. Current visitor center operation has a minor effect on the visual quality of the area; continued operation of the facility would be expected to have a similar, minor cumulative effect. Improved outdoor lighting within the development would, however, enhance the dark nighttime skies.

Conclusion

When combined with other past, present, and foreseeable future actions that would result in impacts to visual quality, this alternative would have minor effects. Changes in area outside lighting, independent of this project, would have a beneficial and long- term effect to the lightscape of the area. 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, including Lightscapes

Impact Analysis

Construction of the new OFVEC would result in a functional structure that is compatible with the Old Faithful Historic District yet not overly imitative of the other buildings in the district. The visitor center's architectural design would offer a modern interpretation of the district's rustic architectural style, thus improving the visual quality of the area.

The short- term visual effects of the proposed project would include disturbed land, construction equipment, and development activities. Contractors would be required to maintain an organized construction site and to minimize adverse visual impacts on park visitors and residents. In the long- term, the OFVEC would be more visible, thus more accessible to visitors, and would be more compatible with the historic district than the existing visitor center.

Lighting around the new OFVEC would be the minimum required for security and safety purposes, and light from fixtures would be directed downward so as not to create unnecessary glare around or beyond the building. Low- level lighting inside the lobby would be the minimum required for security reasons. Light would not be visible from the tower. It is probable that visitors walking close to the building would notice the minimal lobby lighting through the lobby glass, however, this minimal lighting would not impact visitors' experiences in the geyser basin at night.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on visual quality and its impact on night skies must be independently and collectively evaluated. The construction of a new OFVEC would replace an existing facility on the same site within the midst of a major park development and, because of its architecturally compatible design, improve the visual quality of the developed area. The NPS fully recognizes the importance of preserving Yellowstone's dark nighttime skies and this project would not impact this resource. When added to such events, construction of a new OFVEC would have a moderate and beneficial cumulative impact on the visual resources of the park, including its lightscapes.

Conclusion

When combined with other past, present, and foreseeable future actions that would result in impacts to visual quality, this alternative would have moderate, direct and localized, and long-

term beneficial impacts on the park's visual quality. Changes in area outside lighting, independent of this project, as well as lighting design for the new OFVEC would have a beneficial and long- term effect to the lightscape of the area. 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.

Historic Resources, including the Cultural Landscape

Methodology and Intensity Thresholds

In order for a historic site, structure, or building 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: embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master; or possesses high artistic value; or represents a significant and distinguishable entity whose components may lack individual distinction; or
- D: has yielded, or may be likely to yield, information important in prehistory or history.

A historic building or structure must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Section 106 (§106) consultation (as described in the National Historic Preservation Act of 1966, as amended) with the appropriate State Historic Preservation Officer (SHPO) will occur for a proposed project. The Advisory Council on Historic Preservation is invited to participate if a proposed project is considered a major undertaking.

Analyses of the potential intensity of impacts to historic resources were derived from a review of the List of Classified Structures, research in the park archives to determine the potential eligibility of the historic resource(s), and on- site investigations to determine a project's proximity to historic resources.

The thresholds of change for the intensity of impact to historic resources are defined as follows:

Negligible: Historic resources would not be affected or the effects would be below the level of detection. A "negligible effect" corresponds to a "no effect" determination by the park for §106 purposes. Informal consultation with the SHPO might occur, but would not be required.

Minor: Effects to historic resources would be detectable (e.g., minor replacement of deteriorated historic fabric with new, in- kind material, or minor external alterations that do not affect the character- defining features of

the structure or building), although the effects would result in little, if any, loss of significance or integrity. The National Register eligibility of the historic resource would not be affected by the project. A "minor effect" corresponds to a "no adverse effect" determination by the park for §106 purposes. Consultation with the SHPO would occur.

Moderate: Effects to historic resources would be readily detectable, would have the potential to diminish the significance or integrity of the site, structure, or building, and may jeopardize its National Register eligibility. A "moderate effect" corresponds to either an "adverse effect" or a "no adverse effect" for §106 purposes depending on mitigation measures proposed. Mitigation measures resulting from consultation could include such items as conservation measures to stabilize the site, structure, or building; Historic American Building Survey (HABS) level photography and/or as- built construction drawings; large- scale, in- kind replacement of historic fabric or use of simulated materials to replicate historic fabric; reuse of portions of the historic structure or building; and/or design of the new structure or building to preserve elements of form and function of the historic structure or building.

Major: Effects to historic resources would be obvious, long- term, and would diminish the significance and integrity of the site, structure, or building to the extent that it is no longer eligible for listing in the National Register. A "major effect" would correspond to an "adverse effect" for §106 purposes.

Impacts of Alternative 1 on Historic Resources

Impact Analysis

Continued operation of the Old Faithful Visitor Center would preserve this historic structure and its function. However, the structure is not compatible with the Old Faithful Historic District of which it is a part. Over time the condition of the building would be expected to deteriorate, and major repairs would eventually be needed, however, funding for this work is not assured.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on the historic resources must be independently and collectively evaluated. Yellowstone has numerous important historic buildings and structures that need maintenance and rehabilitation. The cumulative impact of Alternative 1, when combined with other past, present, and foreseeable future actions, would be minor, but long- term deterioration in the Old Faithful Visitor Center would likely continue.

Conclusion

The effects of time and weathering, along with lack of ongoing maintenance, would result in continued slow deterioration of the Old Faithful Visitor Center. The cumulative effect of this alternative, when combined with other past, present, and foreseeable future actions, is expected to be long- term, minor, and direct. 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 Historic Resources

Impact Analysis

The Old Faithful Historic District and the Old Faithful Inn (a National Landmark) are quite significant to the cultural history of Yellowstone and the Nation, thus, the NPS began consulting with the Wyoming SHPO and the Advisory Council when the OFVEC project was first proposed. As the preferred alternative developed, it was recognized that construction of the new OFVEC would necessitate the demolition of the current Old Faithful Visitor Center complex, a Mission 66/Parkscape development that has been determined eligible for listing in the National Register. Demolition would constitute a major impact ("adverse effect") to this historic structure. However, for various reasons including the fact that the visitor center's Mission 66/Parkscape design is not compatible with the Old Faithful Historic District of which it is a part, the Wyoming SHPO and the Advisory Council agreed that demolition of this historic structure could be mitigated.

A Memorandum of Agreement (MOA) among the three agencies regarding the demolition of the Old Faithful Visitor Center complex and the construction of the proposed Old Faithful Visitor Education Center was signed December 4, 2003 (see Appendix C). This agreement stipulates that the visitor center complex would be documented in HABS (Historic American Buildings Survey) format prior to demolition and that the NPS would continue to involve the Wyoming SHPO in the design development of the new OFVEC. The Wyoming SHPO and the Advisory Council have provided important comments that have helped guide the evolution of the proposed visitor education center's design, and both agencies have concurred with the current design direction. Consultation will continue as the building design and specific particulars of materials and other detailing features are developed.

The architectural design of the new OFVEC would be compatible with the Old Faithful Historic District and the cultural landscape. The location of the proposed visitor education center would be compatible with the existing spatial organization of land uses and pedestrian circulation patterns around the site. The style, setback, scale, and materials of the new visitor education center would be compatible with that of adjacent historic structures. The rustic design using native stone and logs would complement the Inn, Old Faithful Lodge, and the Historic District.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on the historic resources of the park must be

independently and collectively evaluated. The construction of a new OFVEC that is compatible with the Old Faithful Historic District would replace an existing facility that is not compatible on the same site within the midst of a major park development. While the demolition of the existing National Register- eligible facility would occur, a MOA was signed to mitigate this adverse effect. When added to other projects in the area, construction of a new OFVEC would have a moderate, beneficial, and long- term cumulative effect for the historic resources of the park.

Conclusion

Under this alternative, a property that is eligible for listing in the National Register would be demolished, however, the structure is not compatible with the important Old Faithful Historic District where it is located, and the replacement structure would be compatible with the historic district. Thus, while there would be long- term, direct, and adverse impacts to the Old Faithful Visitor Center under this alternative, these impacts would be mitigated under the stipulations detailed in the MOA signed by the park, the Wyoming SHPO, and the Advisory Council. The final results of implementing Alternative 2 would be moderate, long- term, direct, and beneficial. 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.

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 National Park and the Old Faithful area, including statistics kept by the Yellowstone Visitor Services Office and the Old Faithful Visitor Center 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 the level of detection.
Minor:	Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short- term. The visitor may or may not be aware of the effects associated with the alternative.
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

Operation of the existing Old Faithful Visitor Center would continue to cause frustration for park visitors. It would continue to be difficult to convey critical information necessary to protect the safety of both visitors and park resources. There would continue to be no room to provide interpretive and educational information to enhance visitor understanding and appreciation of park resources. The building would continue to pose a risk of "catastrophic failure" in the event of a moderate to severe earthquake. Moderate long- term impacts to the visitor would continue.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on visitor use and experience must be independently and collectively evaluated. 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 near 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. About 85 percent of Yellowstone's visitors come to the Old Faithful area. Because of the limitations described in this document, continued operation of the Old Faithful Visitor Center would not permit the NPS to address visitor needs or achieve the park's desired visitor experience goals resulting in moderate, long- term cumulative impacts for park visitors.

Conclusion

This alternative would result in continued direct, long- term, and moderate 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 moderate. 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 Visitor Use and Experience

Impact Analysis

Construction of a new OFVEC would provide moderate, long- term benefits to visitors through improved visitor experience. The new visitor education center would allow the NPS to provide critical visitor information, both through its exhibits and increased accessibility to staff, that would prepare visitors to safely explore the fragile and potentially hazardous hydrothermal basins and resources of the park. This information is also critical for the protection of these irreplaceable resources. Space for interpretive and educational exhibits in the new OFVEC would provide visitors with information to enhance visitor understanding and appreciation of park resources. The new OFVEC would be designed to Seismic Zone 4 standards in order to

withstand a maximum credible earthquake, providing a safer visitor facility. No increase in park (or area) visitation is expected through implementation of this alternative as the proposed OFVEC would simply meet the needs of current visitors to the area.

During construction there would be direct (localized), short- term, and minor inconveniences (dust, confusion, construction activity) to park visitors. Small delays due to construction activities and traffic may occur. Construction boundaries and scheduling would be established to minimize disturbances to visitors as much as possible.

Cumulative Impacts

Construction projects in the western part of Yellowstone and in the Old Faithful area would continue to occur, but each project's effects on visitor use and experience must be independently and collectively evaluated. Visitation to Yellowstone and Old Faithful is not expected to increase because of this proposal; however, those visitors who do come to Old Faithful will be better served by an appropriately designed and sized visitor education facility. Selection of this alternative would have long- term, beneficial, and direct cumulative impacts on the visitor use and experience of Yellowstone.

Conclusion

This alternative would have moderate, long- term, direct, and beneficial improvements to the visitor use and experience, with short- term, direct (localized), and minor adverse impacts due to construction. 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.

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. A Memorandum of Agreement was signed December 4, 2003, for mitigating the necessary demolition of the current visitor center. This

environmental assessment will be submitted to the Wyoming SHPO and the Advisory Council 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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CONSULTATION AND DISTRIBUTION OF ENVIRONMENTAL ASSESSMENT

Agencies and organizations contacted for consultation purposes and which will receive a copy of this Environmental Assessment for review include the U.S. Fish and Wildlife Service, Wyoming State Historic Preservation Office, Advisory Council on Historic Preservation, Teton County Certified Local Government, and Yellowstone's 26 Associated Native American Tribes.

This EA is being sent to approximately 240 individuals, agencies, and groups soliciting comments on the problems, issues, and alternatives addressed. A complete list of the mailing is available in the park's Planning Office. A press release was issued on January 21, 2005. The EA is posted on Yellowstone's web page, http://www.nps.gov/yell/technical/planning.

Appendix A

Size & Footprint Comparisons
Major Visitor Facilities, Old Faithful Area

Building	Building Footprint[1] (sq. ft.)	Total Building Size (sq. ft.)
Current Old Faithful Visitor Center	12,000[2]	15,150[3]
Proposed Old Faithful Visitor Education Center	23,350	33,000 (approximate)
Old Faithful Inn	90,000	188,445
Old Faithful Snow Lodge	38,000	100,436
Old Faithful Lodge (with attached Recreation Hall)	54,100	54,100
Old Faithful Lodge Boiler Building	4,650	4,650

[1] The building footprint equals the size of the entire main floor (the ground- level perimeter of the building)

[2] The square footage of the current visitor center footprint includes the two satellite theaters and the restroom building.

[3] The total square footage of the current visitor center includes office space upstairs and the backcountry permitting function, which is currently housed in a facility that is approximately ¼ mile from the visitor center.

Appendix B

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 C

Memorandum of Agreement
among the National Park Service,
the Wyoming State Historic Preservation Office,
and the Advisory Council on Historic Preservation
Regarding the
Demolition of the Old Faithful Visitor Center Complex and
Construction of the Old Faithful Visitor Education Center
Yellowstone National Park

WHEREAS, the National Park Service (NPS) has determined that the demolition of the Old Faithful Visitor Center; associated restroom building; two separate, but adjoining, theater buildings; and associated interpretive, structural, and landscape features will have an adverse effect on the Old Faithful Visitor Center Complex, which is eligible for listing in the National Register of Historic Places, as well as on the existing Old Faithful Historic District (which is listed in the National Register of Historic Places) and the Old Faithful Inn (which is a National Historic Landmark), and has consulted with the Wyoming State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470f); and

WHEREAS, in accordance with 36 CFR Section 800.6(a)(1), the NPS has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination, and the ACHP has chosen to participate in the consultation pursuant to 36 CFR Section 800.6(a)(1)(iii);

NOW, THEREFORE, the NPS and the Wyoming SHPO agree, with the concurrence of the ACHP, that the construction of the new Old Faithful Visitor Education Center shall be implemented in accordance with the following stipulations in order to take into account the effect of the new development on existing historic properties.

I. STIPULATIONS

The National Park Service, in cooperation with the Wyoming SHPO, will ensure that the following stipulations are implemented:

1. The existing Old Faithful Visitor Center complex will be adequately documented in HABS (Historic American Buildings Survey) format before removal from the site. Yellowstone National Park, representing the NPS, will contact the HABS Mitigation expert, National Park Service, Rocky Mountain Regional Support Office, Denver, CO, summarizing the project; the Section 106 requirements; documentation request from the Wyoming SHPO; existing 4"x5" format photographs taken by Jet Lowe, HABS photographer, with attached information on the history of the property (Wyoming Cultural Resource Inventory forms); maps; UTM locations of the district; and a narrative history of the design and development of the Old Faithful Visitor Center.
2. The NPS's responsibilities, under Section 106 of the National Historic Preservation Act of 1966, as amended, will be complete concerning only the demolition of the existing Old Faithful Visitor Center once the Wyoming SHPO receives and accepts the final HABS documentation as satisfactory mitigation. Buildings and infrastructure will not be removed

from the site until NPS receives written acceptance of the HABS documentation from the Wyoming SHPO.

3. The NPS will continue to provide the Wyoming SHPO updated design development information in a timely manner on the new Old Faithful Visitor Education Center. The NPS will solicit the Wyoming SHPO's comments on the scoping documents, the environmental assessment, and on the design as it proceeds from design development through the construction documents stages. Reviews will be solicited from the Wyoming SHPO during design development at the 10%, 50%, and 90% completion stages. The construction documents will be provided to the Wyoming SHPO for comment at the 10%, 50%, and 90% stages. The NPS will continue to take into account the Wyoming SHPO's comments throughout the consultation process on this project. The Wyoming SHPO shall have thirty (30) calendar days to provide written comments at each stage of the design development and construction document phases of the project.

II. DURATION

This agreement will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, the NPS may consult with the other signatories to reconsider the terms of the agreement and to amend the document in accordance with Section IV below.

III. DISPUTE RESOLUTION

1. Should the Wyoming SHPO or the Advisory Council object within 30 calendar days to the actions proposed by the NPS pursuant to this MOA, the NPS shall, for a period not exceeding 10 calendar days, consult with the objecting party to resolve the objection. If the NPS determines that the objection cannot be resolved, the NPS shall forward all documentation relevant to the dispute to the Advisory Council. Within 30 calendar days after receipt of all pertinent documentation, the Advisory Council will either:

    A. Provide the NPS with recommendations, which the NPS will take into account in reaching a final decision regarding the dispute; or
    B. Notify NPS that it will comment pursuant to 36 CFR 800.6(b) and proceed to comment. Any Advisory Council comment provided in response to such a request will be taken into account by NPS in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

2. Any recommendations or comments provided by the Advisory Council will be understood to pertain only to the subject of the dispute; the NPS's responsibility to carry out all actions under this agreement that are not subject to the dispute will remain unchanged.

IV. AMENDMENTS AND NONCOMPLIANCE

If any signatory to this MOA determines that its terms will not or cannot be carried out or believes that an amendment or addendum to its terms must be made, that party shall immediately consult with the other parties to develop an amendment or addendum to this MOA pursuant to 36 CFR 800.6(c)(7) and 800.6(c)(8). The amendment or addendum will be effective on the date a copy signed by all of the original signatories is filed with the Advisory Council. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with the Section VI, below.

V. FAILURE TO CARRY OUT TERMS OF AGREEMENT

Failure to carry out the terms of this MOA requires that NPS again request the Advisory Council's comments in accordance with 36 CFR 800. If NPS cannot carry out the terms of the MOA, it will not take or sanction any action or make any irreversible commitment that would result in an Adverse Effect to an historic property or that would foreclose on the Advisory Council's consideration of modifications or alternatives to the undertaking until the commenting process has been completed.

VI. TERMINATION

If this MOA is not amended following the consultation set out in Section IV, it maybe be terminated by any signatory. Within 30 days following termination, the NPS shall notify the signatories if it will initiate consultation to execute another MOA with the signatories under 36 CFR 800.7(c)(1) or request the comments of the Advisory Council under 36 CFR 800.7(a) and proceed accordingly.

Execution of this Memorandum of Agreement by the NPS and Wyoming SHPO and the submission of documentation and filing of this MOA with the Advisory Council pursuant to 36 CFR Section 800.6 (b)(1)(iv) and implementation of its terms evidence that the NPS has taken into account the effects of this undertaking on historic properties and afforded the Advisory Council an opportunity to comment.

NATIONAL PARK SERVICE

By: /s/ Date: 9/19/03
Suzanne Lewis, Superintendent, Yellowstone National Park

WYOMING STATE HISTORIC PRESERVATION OFFICER

By: /s/ Date: 10/3/03
Judy Wolf, Program Manager, Review and Compliance, Wyoming SHPO

Accepted by

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: /s/ Date: 12/4/03
John M. Fowler, Executive Director