National Park Service
U.S. Department of the Interior

Glacier National Park
Montana

Upgrade Utilities at Two Medicine Environmental Assessment

May 2004

Environmental Assessment

L76-GLAC-03-083

May 14, 2004

Dear Friends:

Enclosed is the *Upgrade Utilities at Two Medicine Environmental Assessment* (EA) that proposes a number of projects to upgrade utilities in the Two Medicine area. These were proposed by Glacier National Park in September 2003. This EA is on public review for 30 days. Comments are due by **June 14, 2004**. Please write to Superintendent, Glacier National Park Attn: Two Medicine EA, P.O. Box 128, West Glacier, Montana 59936 or email comments to: glac_public_comments@nps.gov. Please note in subject line: Two Medicine EA.

The park is proposing to consolidate the campground sewage system into one system. This would include a new drainfield, new sewer lines along the road corridor, and satellite lines to the comfort stations in the campground. The current system consists of several small onsite wastewater systems that are shallow and could potentially contaminate the ground water and nearby lake.

In addition, the underground electric lines in the Two Medicine campground area have deteriorated and would be replaced. The lines would tie in with the road corridor, and would cross the creek either along the bridge or underground. Glacier Electric Cooperative has also proposed removing the overhead lines from the park boundary to the campground and installing underground electric along the road corridor into Two Medicine. A new phone line is also proposed for installation at the same time and location as the new electric lines. If the lines were installed now, the park would not have to install lines later when increased phone service becomes available to the Two Medicine valley. A new well has also been proposed to alleviate problems with low water pressure and low flow that decreases protection of the developed area in the event of a fire.

Radio communications in the Two Medicine valley are currently limited. The existing repeaters cannot provide adequate radio coverage for the Two Medicine valley, leaving many areas without radio communications. Since radio communications are considered a life safety issue in the park, especially in developed areas such as Two Medicine, the National Park Service has proposed a new radio tower in Two Medicine.

The resources that would be affected by these proposals have been analyzed in the enclosed EA. These resources include water quality, aquatic resources, soils, vegetation, wildlife, threatened & endangered species and species of concern, cultural and archeological resources, park operations, visitor experience and public health and safety.

The parks 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. There also may be circumstances in which we would withhold from the record

a respondent's identity as 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.** However, we will not consider anonymous comments. 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.

Thank you for your continued support and interest in Glacier National Park.

Sincerely,

Michael O. Holm
Superintendent

Enclosure (1)

Upgrade Utilities at Two Medicine

Glacier National Park • Montana

SUMMARY

The National Park Service (NPS) is proposing several improvements to the utilities in the Two Medicine area to address current inadequacies in the utility systems:

- *Improve Wastewater Treatment*—The NPS proposes to consolidate and centralize the subsurface wastewater collection, disposal and treatment system by installing a new drainfield.
- *Upgrade Underground Electric Lines and Install Telephone Lines*—The NPS proposes to allow Glacier Electric Cooperative to replace the obsolete and failing underground electrical lines. Also, the NPS would install new telephone lines in the electric line trenches while they are open.
- *Bury Overhead Power Lines*--The NPS proposes to coordinate with Glacier Electric Cooperative on the burial of the overhead power lines in the Two Medicine area and abandonment of the existing utility corridor. Concurrent with this project, telephone lines would be installed in the same trench as the power lines in order to improve telephone service in the valley.
- *Relocate Radio Tower*—The NPS proposes to move the existing radio base station and antenna to a location that assures contact with the base station in West Glacier and throughout the east side.
- *Construct New Water Well and Storage*--The NPS proposes to drill a new well in the Two Medicine area and install an additional aboveground water storage tank to provide adequate structural fire protection.

The two alternatives addressed in this EA are the no action alternative and the preferred alternative. The preferred alternative would have minor, long-term, site specific adverse impacts to soils; minor, site specific, short-term adverse and long-term beneficial impacts to vegetation; negligible to minor, long-and short-term, site specific adverse impacts to wildlife and threatened and endangered species and species of concern if work occurs in the summer and moderate if in spring or fall; minor, localized, long-term beneficial impacts to water quality and adverse impacts to the floodplain; negligible to minor, long- and short-term adverse impacts to cultural resources; moderate, long-term, localized beneficial impacts to public health and safety; and negligible to minor, site-specific, short-term adverse and long-term beneficial impacts to the visitor experience. Cumulative effects would be adverse or beneficial, ranging from minor to moderate, long- to short-term, and site specific to localized.

Public Comment

If you wish to comment on the environmental assessment, you may mail comments to the name and address below. This environmental assessment will be on public review for 30 days. Please note that names and addresses of people who comment become part of the public record. **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, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Superintendent
Attn: Two Medicine Wastewater EA
Glacier National Park
West Glacier, MT 59936

TABLE OF CONTENTS

List of Tables

List of Figures

PURPOSE AND NEED

Glacier National Park is situated on the Canadian border in the northwestern section of Montana. The park is in the Rocky Mountains in the northern United States, and contains the rugged mountains of the Continental Divide. Together with Canada's Waterton National Park, it forms the Waterton-Glacier International Peace Park, and is a World Heritage Site. Superb natural resources are found in both parks.

The purpose of Glacier National Park is to:

- Preserve and protect natural and cultural resources unimpaired for future generations (1916 Organic Act);
- Provide opportunities to experience, understand, appreciate, and enjoy Glacier National Park consistent with the preservation of resources in a state of nature (1910 legislation establishing Glacier National Park); and
- Celebrate the on-going peace, friendship, and goodwill among nations, recognizing the need for cooperation in a world of shared resources (1932 International Peace Park legislation).

Glacier's significance is explained relative to its natural and cultural heritage:

- Glacier's scenery dramatically illustrates an exceptionally long geological history and the many geological processes associated with mountain building and glaciation;
- Glacier offers relatively accessible spectacular scenery and increasingly rare primitive wilderness experience;
- Glacier is at the core of the "Crown of the Continent" ecosystem, one of the most ecologically intact areas remaining in the temperate regions of the world;
- Glacier's cultural resources chronicle the history of human activities (prehistoric people, American Indians, early explorers, railroad development, and modern use and visitation) show that people have long placed high value on the area's natural features; and
- Waterton-Glacier is the world's first international peace park.

Glacier National Park has been divided into six well-known geographic areas, each with its own management philosophy: Many Glacier, Goat Haunt-Belly River, the Going-to-the-Sun Road corridor, Two Medicine, Middle Fork, and North Fork (NPS 1999a). The six geographic areas each contain up to four management zones: the visitor service zone, the day use zone, the rustic zone, and the backcountry zone. Each of the four management zones has a different set of desired resource conditions, visitor experiences, management activities, and development.

Glacier National Park is proposing to improve the wastewater treatment systems at Two Medicine, upgrade the underground electric lines and install new phone lines. The park is also proposing to bury the overhead power lines along the entrance road, relocate the radio tower and construct a new water well and larger storage tank. The site where these proposed projects are located is in the visitor service zone of the Two Medicine subdistrict (Figure 1). The Two Medicine area has dramatic mountain and prairie scenery with both natural and cultural features. The transition between plains and mountains is an important feature of the area. It has important geological attractions (the Lewis overthrust) and also provides important habitat for wildlife and plants, including an important travel corridor for grizzly bears and bighorn sheep. The Two Medicine management area borders the early railroad alignment and provides a direct link to Glacier's railroad-sponsored tourism and the development of lodges and chalets. The

Two Medicine Chalet Dining Hall (now the general store) is a designated National Historic Landmark and two other buildings are listed in the National Register of Historic Places. The Blackfeet and Confederated Salish and Kootenai Indians retain strong cultural ties to the area.

The Two Medicine area is managed to preserve its culturally significant resources, wild character, and important wildlife habitat. Front country and backcountry camping are available. The visitor service zone (Figure 2) is small, but provides traditional visitor services, including the paved entrance road, picnic area, campground, ranger station, gift shop and food facilities, and administrative support. A campground with potable water and sanitation facilities is also located in the valley.

The NPS has determined that within the visitor use management zone, a range of services and facilities will continue to be provided to support the visitor's ability to experience the park.

Improvements are needed to address the following issues.

*Aging Multiple Individual Septic Systems that could threaten the groundwater resources. T*he current wastewater collection, disposal and treatment system consists of seven small onsite wastewater systems with individual septic tanks, drain fields, gravity sewer lines, a lift station and force mains. The campground water and sewer systems were installed in 1960; the latest modifications to the wastewater system were done in 1979, during which a new drainfield was added. Overall the system has become bulky and unmanageable because of the many individual septic systems and drainfields. The individual drainfields are each releasing effluent into the ground and eventually the groundwater, and although the alluvial gravel soils make drainfield failure unlikely, the proximity to Two Medicine and Pray Lakes makes the possibility of pollution of surface waters in the lakes unacceptably high. In 1990 water quality studies conducted in Glacier lakes, Two Medicine Lake did not indicate pollution by the septic system (Ellis et al. 1992); however the risk remains. The need to upgrade the current system is based on the need to protect park resources from any future problems.

Failing Electric Lines and Inadequate Telephone Lines
The existing underground electric lines are failing and need to be replaced. Much of the electrical infrastructure is deteriorating, and faults in circuits are becoming more inevitable as they age. The electrical system currently consists of a 480 volt system delivering power to dry transformers on each building. These 480 volt lines are considered unsafe. Each year the underground conductor fails, resulting in power outages in Two Medicine. The design of the conductor makes it difficult to find and repair faults in a timely manner, and water, sewer and local concession facilities are shut down temporarily during power outages. Upgrading this system would improve the quality of electrical service in the Two Medicine developed area. Also, additional telephone lines are needed to accommodate the needs of the ranger station, campground and concessionaire. The existing phone lines are not compatible with internet capabilities.

Overhead Power Lines and Interrupted Electrical Service to the Valley
The current power supply for the Two Medicine area is via overhead power lines that run through a utility corridor that was cut through the forest in 1966. This intrudes on the visual experience of visitors, alters native wildlife habitat, and detracts from the beauty and wild character of the Two Medicine area. Glacier Electric Cooperative frequently has trouble with the overhead power lines due to snow loads, trees falling on lines, or poles washing out near Dry Creek, causing interruptions in service. The existing overhead power line corridor traverses a remote area, and repairs are difficult and slow to locate the problem and repair it when equipment must be hauled in on foot to remote locations.

Limited Radio Communications

Radio communications in the Two Medicine valley are currently limited by topography. The existing repeaters cannot provide adequate radio coverage for the Two Medicine valley, leaving many areas without radio communications. Radio communications are considered a life safety issue in the park, especially in isolated developed areas such as Two Medicine.

Lack of Adequate Water Storage and Decreasing Availability of Potable Water
The water supply at Two Medicine is currently overtaxed by demands from the concession operations, campground and NPS residents. Currently there are two wells located near the two water tanks along the road to the designated park storage yard, yielding 20 and 10 gallons per minute. The yield from the two wells takes all night to fill the tanks and is not adequate for structural firefighting according to the standards set by the National Fire Protection Association. The current storage capacity of 40,000 gallons is also inadequate for fighting structural fires. The location of the current tank does not provide adequate water pressure for the demands placed on the system. Additional water storage and pressure is needed to protect park resources.

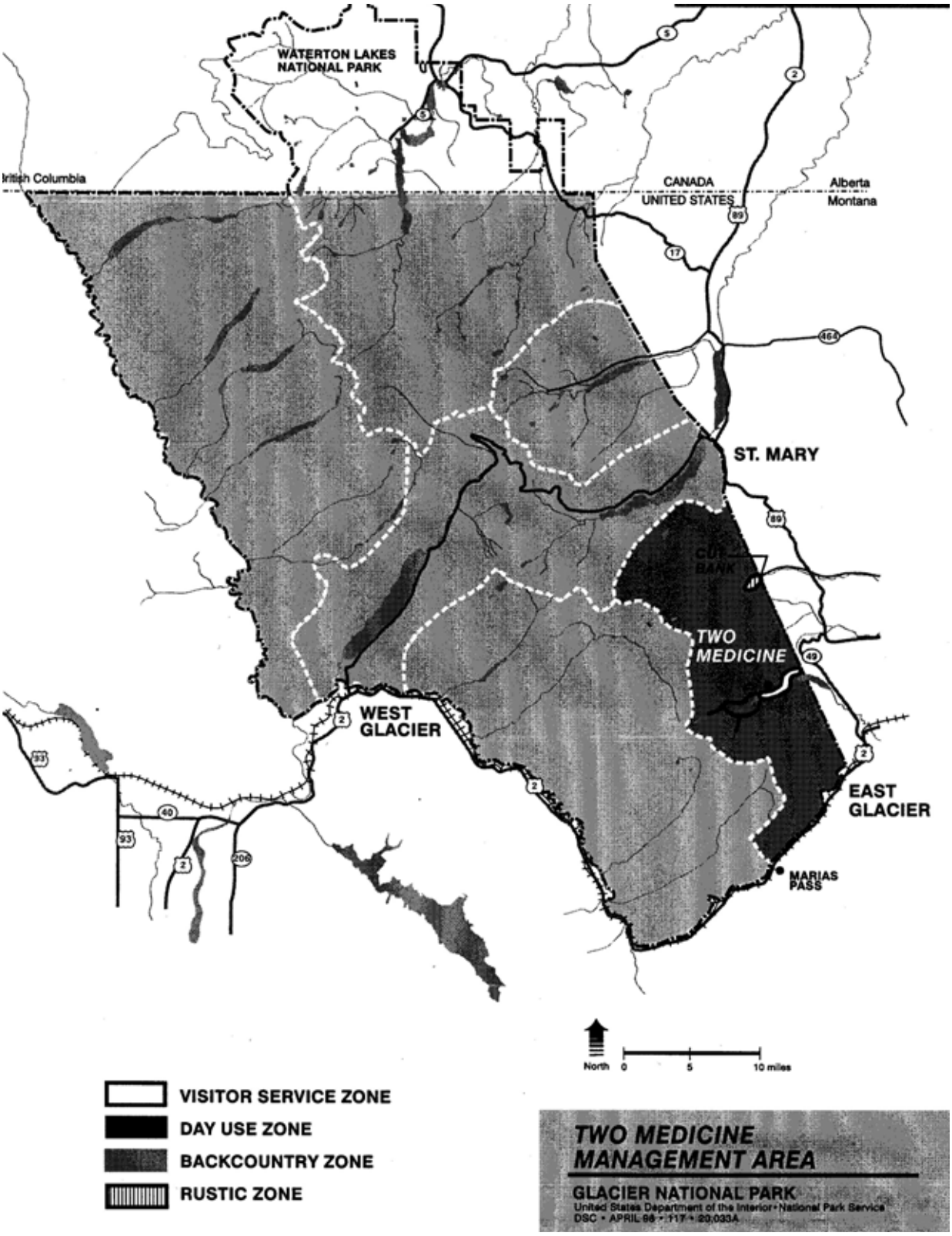
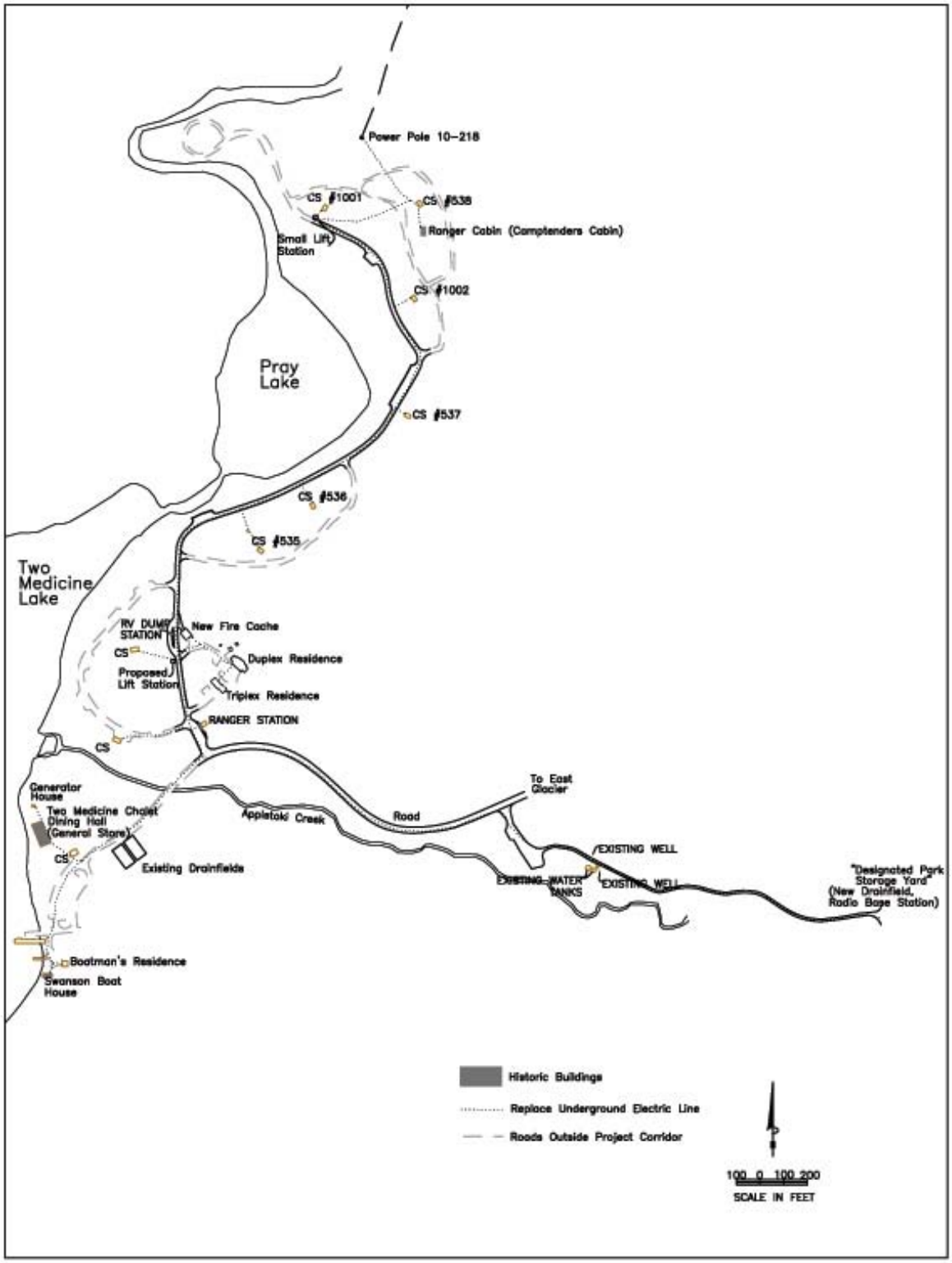


Figure 1. Two Medicine Management Area.

Figure 2. Two Medicine Utility Upgrades



PUBLIC INVOLVEMENT (SCOPING)

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. Glacier National Park conducted both internal scoping with appropriate National Park Service staff and external scoping with the public and interested and affected groups and agencies.

The interdisciplinary process of internal scoping defined the purpose and need, identified potential actions to address the need, determined what the likely issues and impact topics would be, and identified the relationship, if any, of the proposed action to other planning efforts at the park.

A news release describing the proposed action was issued on September 19, 2003. Public comments were requested until October 27. Four comments were received by mail and email. One letter supported all the proposed projects. Another letter supported the projects but expressed concern about the visibility of a 40 foot radio tower.

A letter from the U.S. Army Corps of Engineers stated that in order to place underground utility lines across any stream or adjacent wetland, a Department of the Army permit is required, and the criteria for the Nationwide Permit Program were enclosed. No wetlands are in the project area, and the proper permits would be obtained in order to cross Appistoki Creek with the proposed utility lines.

A letter from the Confederated Salish and Kootenai Tribes of the Flathead Reservation expressed concerns about ground disturbance and impacts to archeological resources. The park cultural resource specialist met with the Confederated Salish and Kootenai Tribes' Tribal Preservation Department on December 11, 2003. Beyond their earlier comment regarding ground disturbance, they stated that they would defer to the Blackfeet Tribe's comments on this individual Environmental Assessment.

The park cultural resource specialist met with the Blackfeet Tribal Business Council's Cultural Liaison on December 17, 2003. He expressed general concurrence with the proposed Section 106 procedures as stipulated in this Environmental Assessment for archaeological resources. He also asked that the park notify him when archaeological survey work will be conducted to see if it can be used as a training opportunity for tribal members who have qualified under a Bureau of Indian Affairs program to conduct small cultural resource surveys.

The park cultural resources specialist met with the State Historic Preservation Office, State Archeologist, on March 19, 2004. He generally concurred with the proposed Section 106 identification and evaluation procedures as stipulated in this Environmental Assessment for archaeological resources.

RELATIONSHIP OF THE PROPOSED ACTION TO PREVIOUS PLANNING EFFORTS

The proposed action is consistent with the objectives of Glacier National Park's General Management Plan/Environmental Impact Statement and Record of Decision (1999).

IMPACT TOPICS

Issues and concerns affecting the proposed action were identified by specialists in the National Park Service, as well as the Montana State Historic Preservation Officer (SHPO), the Confederated Salish and Kootenai Tribal Preservation Department and the Blackfeet Tribal Business Council Cultural Liaison. Impact topics are the resources of concern that could be affected by the range of alternatives. Specific impact topics were developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics

were identified on the basis of federal laws, regulations, orders, and National Park Service Management Policies, 2001 and input received during scoping. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Soils

The proposed actions would disturb soils in the project area; therefore soils were included as an impact topic in this EA.

Vegetation

The proposed actions would disturb vegetation in the project area; therefore vegetation was included as an impact topic in this EA.

Wildlife

The Two Medicine developed area is within contiguous habitat for a variety of wildlife species that could be displaced by additional human activity and noise from the use of heavy equipment associated with the proposed actions. Therefore wildlife is included as an impact topic in this EA.

Threatened and Endangered Species and Species of Concern

The visitor service zone of the Two Medicine area is within habitat for several federally listed threatened wildlife species and state listed wildlife species of concern; therefore they were included as an impact topic in this EA. There are no known federally listed threatened or endangered plant species in Waterton-Glacier International Peace Park (NPS 1999). No threatened or endangered plant species or species of concern were found in the project area based on a survey conducted in September 2003. Habitat for the federally threatened water howellia (*Howellia aquatilus*), a wetland dependent species, may be present in the park, but there are no recorded observations or potential habitat in the project area. Spalding's campion (*Silene spaldingi*), recently listed as a Threatened species, has never been reported in the park, nor has potential habitat been identified. There is one plant species designated as a Candidate species by the U.S. Fish & Wildlife Service, slender moonwort (*Botrychium lineare)* but it was not found during the survey.

Water Quality

The proposed wastewater treatment improvements are expected to have long term benefits to water quality in the project area. Water resources are not immediately adjacent to the site, but could be indirectly impacted as a result of ground disturbance. Therefore, water quality is included as an impact topic in this EA.

Cultural Resources

Cultural Resources, including archeological sites, a National Historic Landmark building and two buildings listed in National Register of Historic Places are present within the Two Medicine developed area of the visitor service zone, and the project must be evaluated for effects on these resources. Therefore, archeological sites and historic buildings and structures are included as impact topics in this EA.

Park Operations and Public Health and Safety

The proposed utility upgrades would affect park operations and public health and safety, therefore they are included as an impact topic in this EA.

Visitor Experience

Burying the overhead power lines and installing a new radio tower would impact visitor experience, and the proposed construction projects would be visible and audible to visitors and

parts of the campground and roads would need to be closed temporarily, which would affect visitors. Therefore the visitor experience is included as an impact topic in this EA.

IMPACT TOPICS CONSIDERED AND DISMISSED

Air Quality and Natural Soundscapes

During construction activities, heavy equipment can stir up dust and make noise. As a result, there may be negligible, short-term, site specific, negative impacts during construction activities, but beyond that there would be no effect on air quality or natural soundscapes associated with the proposed project. There would be no change in types of activities that occur on a daily basis in this developed area. Therefore, these topics were dismissed as an impact topic in this EA.

Aquatic Resources

The proposed construction site is near the foot of Two Medicine Lake in the Two Medicine Creek drainage, which is thought to have been historically without fish. Non-native fish introductions began in 1919 in Two Medicine Lake, and continued until 1969 (NPS 1999). There are no aquatic resources adjacent to the site or aquatic species that would be affected by the project area, therefore this topic was dismissed as an impact topic in this EA.

Wetlands and Floodplains

Although the TOPO USA software indicates a small wetland in the vicinity of the designated park storage yard, the National Wetland Inventory (USFWS 1992) does not indicate a wetland here, and neither do the USGS topographical maps. The main developed area was surveyed for presence of wetlands in the summer of 2001 (DeArment 2001), and the designated park storage yard was surveyed in the fall of 2003. No wetlands were detected within the proposed project area; therefore this topic was dismissed as an impact topic in this EA. Although the majority of these proposed projects are located within the floodplain of Appistoki Creek, none of the proposals would impede a flood event because they are buried underground. Therefore floodplains were dismissed as an impact topic.

Cultural Resources

Cultural Landscapes

A preliminary Cultural Landscape Report (Architectural Research Consultants, Incorporated, 2001) identified only the curvature of the road approaching the lake and the Appistoki Creek Bridge as important designed landscape features, combined with the natural features of the view and the dense natural forest edge. The demolitions of most of the Chalets' buildings and extensive post-1960 development have obliterated earlier landscape features. The post-1960 landscape features are not yet 50 years old, which is typically the minimum age for properties to be considered eligible for listing in the National Register of Historic Places. For a property achieving significance within the past 50 years, it must be of exceptional importance. The post-1960 Two Medicine landscape design is typical of the Mission 66-era and does not possess architectural or engineering qualities or associations of exceptional significance. The Montana State Historic Preservation Office, National Register Coordinator, agrees with the park's evaluation of these resources. Therefore cultural landscapes were dismissed as an impact topic.

Ethnographic Landscapes

The Two Medicine area is considered traditional lands by the Blackfeet and the Confederated Salish and Kootenai Tribes. The tribes were notified of this project through the scoping process and the park's Cultural Resource Specialist first spoke with the tribes' cultural liaisons by telephone. Glacier National Park staff also met with the Blackfeet and Salish-Kootenai Tribes during preparation of the Environmental Assessment. This Environmental Assessment will also be sent to the tribes for comment. Neither tribe identified ethnographic concerns beyond

archeological resources. Therefore ethnographic landscapes were dismissed as an impact topic. The tribes have not raised concerns about projects in the park's developed areas in the past. However, Glacier National Park recognizes that the tribes hold a body of knowledge that may result in the identification of ethnographic resources in a developed area in the future. Further consultation will occur in accordance with federal legislation and regulations and National Park Service policy, if ethnographic landscape concerns are identified.

Museum Collections

There are no Glacier National Park museum collection items stored or exhibited in the Two Medicine developed area. Therefore, museum collections was dismissed from further analysis.

Wild and Scenic River

The proposed project is not adjacent to a Wild and Scenic River corridor. Therefore, this topic was dismissed as an impact topic in this EA.

Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) as prime or unique. Prime or unique 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 NRCS, none of the soils in the project area are classified as prime and unique farmlands. Therefore, the topic of prime and unique farmlands was dismissed as an impact topic in this document.

Socioeconomic Environment

The proposed action would neither change local and regional land use nor affect local businesses or other agencies because these are utility improvements occurring within the park. Although the work may be contracted out, it would be a relatively small contract and would not result in a measurable affect on the socioeconomic environment. Therefore, socioeconomic environment will not be addressed as an impact topic in this document.

Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not have disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Environmental Justice Guidance (1998). Therefore, environmental justice was dismissed as an impact topic in this document.

ALTERNATIVES CONSIDERED

NO ACTION ALTERNATIVE

Wastewater Treatment
No improvements would be taken to address infiltration of groundwater by the existing septic systems.

Electric Lines and Telephone Lines
The existing underground electric and telephone lines would remain in place.

Overhead Power Lines
The overhead power lines would not be buried.

Radio Communications/ Equipment
The existing radio base station would remain at the ranger station location.

Water Well and Storage
A new well and storage tank would not be constructed.

PREFERRED ALTERNATIVE

Improve Wastewater Treatment
The NPS proposes to consolidate the individual subsurface wastewater treatment and disposal systems for the Two Medicine campground. A new subsurface drainfield would be installed near the designated park storage yard with new sewer lines along the road corridor, and satellite lines to the comfort stations in the campground. This would accommodate all the separate comfort stations in the campground and picnic area, the administrative office, and housing including the new duplex and new fire cache that are currently served by individual systems. These old drainfield systems would be abandoned and wastewater flows from all facilities in Two Medicine would be served by two large drainfields- the existing one and the new one constructed ½ mile to the east near the maintenance storage yard.

The sewer line replacement would require roughly 5,000 feet of trenching beginning at Comfort Station #1001 and following along the road corridor to the maintenance storage yard. Approximately 1,000 feet from the power pole near Pray Lake to the existing trenches would involve new disturbance. The sewer line would be buried under Appistoki Creek at the same location as the old line. Approximately 800 additional feet of trenching would be required for spur lines from the road to four septic tanks servicing the six comfort stations, the new employee duplex and the fire cache. The remaining two comfort stations, store, ranger station and triplex would continue to be served by the existing drainfield**(s)**. Lift stations (20 feet by 20 feet) would be installed at each of the four septic tanks to pump effluent to the main lift station before sending it to the drainfield uphill. The trenches are expected to be at least 36 inches deep and 36 inches wide. Installation of a drainfield would disturb approximately 0.1 acre. Installation of a lift station would disturb less than 500 square feet.

Any asphalt along the utility corridor would be ground up, trenches would be dug for sewer/electric/phone and water lines (water lines must be at least 10 feet away from sewer lines), lines would be laid, and then the corridor would be repaved. This would require shutting down progressive parts of the campground while the utility and road work is completed.

The subsurface drainfield would be located uphill from the existing drainfield in the designated park storage yard, and at least 100 m from Appistoki Creek. This area, approximately 3,700 feet

from Two Medicine Lake, is significantly farther from the shoreline than the existing drainfield, which is only 370 feet from the lake. Percolation tests showed excellent conditions exist for subsurface drain lines. The drainfield would be approximately 100 by 100 feet in size. The sewer system would involve gravity flow sewers from each wastewater generator to the septic tanks, from which low pressure pumps would deliver effluent to the main lift station, and finally a high pressure pump would send effluent to a new subsurface drain field for soil treatment and disposal. The low pressure pumps are needed to pump effluent over relatively flat terrain; otherwise trenches for gravity flow would have to be excessively deep. The lift station would be comprised of a large, buried, cast-in-place concrete tank with lid, and would be located about 10 feet off the road. Based on recommendations from the State of Montana, the proposed system would consist of an anaerobic tank, a holding tank, two re-circulating filters, a re-circulating pump, and an air fan. Than tanks would be mostly buried with only about 6 inches out of the ground and covered with green fiberglass covers. These filters are 8 feet by 16 feet in size. These would be installed near the main lift station to access power there. The filters would likely need to be fenced to protect them from wildlife and human traffic.

Chamber technology is proposed for this drainfield, which provides a number of advantages over conventional pipe and gravel systems. The two main advantages are decreased linear footage of line leading to less ground disturbance and no possibility of root clog. The tank would contain three compartments: primary treatment would occur in the first two compartments, and clarified effluent would flow into the third, the wet well. The wet well would contain duplex effluent pumps and each would alternately pump the desired dose into a distribution box. The effluent would then flow by gravity and flood the drainfield chambers. The only permanent aboveground installations would be air-release valves, seen as "candy-cane" pipes along the force main. All other parts of the wastewater system would be installed below ground level. A remote alarm system and warning system would be installed.

Mitigation: Work would be done between May 15 and November 1 to minimize impacts to wildlife. Utility line work would occur mostly within existing utility corridors to minimize impacts to undisturbed areas. Field survey for archaeological site identification and evaluation will be conducted. Identified sites within the area of potential effects will be evaluated for the National Register of Historic Places in consultation with the State Historic Preservation Office and Indian tribes. Based upon the results of the identification and evaluation efforts, an archeologist may be required to monitor excavation activities. Disturbed areas would be revegetated with native plant species. To discourage habituation of bighorn sheep to this maintenance area, the NPS would take steps to protect wildlife.

Upgrade Underground Electric Lines and Install Telephone Lines

The NPS proposes to allow Glacier Electric Cooperative to replace the obsolete and failing underground electrical lines in the Two Medicine Developed Area. In order to minimize ground disturbance, the electric line replacement would follow the same corridor as the proposed sewer line. Some route changes from the existing grid are proposed to minimize impacts to vegetation. There would be some locations not served by the proposed sewer lines where the proposed electric lines would require digging new trenches. Approximately 4,250 feet of electric line would be replaced.

The beginning point for the new electric line would be about 300 feet to the north of the upper extent of the sewer line at the final overhead power pole behind the campground. Near the designated park storage yard, the electric line would service the water tanks and the new radio tower, and the phone line would be extended to the new radio tower for the base station. There would be satellite lines connecting to all the existing powered facilities including the Ranger Station, comfort stations, park residences, the new fire cache, and the General Store. New electrical lines would be installed to serve the main lift station and the small lift stations located

at the four main septic tank locations servicing the six comfort stations. There would be over 1,000 feet of satellite trenching, including the area between the Ranger Station and the General Store. The satellite trenches (without sewer line) would be at least 36 inches deep and 12-36 inches wide, depending on the equipment used. The electric line would be buried under the creek during low water. The NPS would replace nine dry (air-cooled) electrical transformers along the electric line.

Trenches would be dug with a Ditch Witch or a small backhoe. Exact location of trenches would be determined in the final design phase of the project. Electrical conductor would be buried at least 36 inches below ground. The asphalt along the utility corridor would be ground up, trenches would be dug for sewer/electric/phone and water lines (water lines must be at least 10 feet away from sewer lines), lines would be laid, and then the corridor would be repaved. Where asphalt does not exist, trench width for electric lines would vary between 12 and 36 inches, depending on the equipment used, and spoils would be placed to one side of the trench, with a total disturbed corridor approximately 8 feet wide along the length of the trench. The NPS would make an effort to shorten the new electric routes and locate more direct paths for some of the spur lines; this would involve approximately 1,850 feet of new ground disturbance. Approximately 8,200 feet of electric line would be buried along the road corridor.

The light pole and lamp at the end of the tour boat parking lot would be removed and replaced with a low level lamp to minimize light pollution. The disturbed areas would be revegetated. An NPS archeologist would monitor excavation activities to identify archeological resources that may be discovered.

New telephone lines would be installed at the same time as the replacement electric lines to facilitate future upgrades of the telephone system in Two Medicine. Phone line would be installed between all the facilities needing phone service, such as the Ranger Station, park residences, and the General Store, and up to the new radio base station near the designated park storage yard. The phone line would be installed in the same trench as the electric line for as much as 1,500 feet. There would be phone boxes, approximately 3 feet high and 6 inches square, installed periodically. Phone boxes used for splicing lengths of cable could be underground, while those located at phone line junctions should be aboveground. Aboveground boxes would be painted to make them less noticeable. The phone line would be installed at least 1 foot above the electric line, so there would be no need to change the width of the trench to accommodate the phone line.

Mitigation: Work would be done between May 15 and November 1 to minimize impacts to wildlife. Utility line work would occur mostly within existing utility corridors to minimize impacts to undisturbed areas. An archeologist would monitor excavation activities outside previously disturbed areas to identify archeological resources that may be discovered. Disturbed areas would be revegetated by the NPS with native plant species.

Bury Overhead Power Lines

The NPS proposes to bury the overhead power lines in the Two Medicine area and abandon the existing utility corridor. The existing overhead powerline would be removed. A new powerline would be buried underground along the entrance road from the park boundary to the main power box at the ranger station, a distance of approximately 3 miles. Glacier Electric Cooperative may also continue burial of the line from the park boundary to Highway 49 (Figure 1). The park maintains that portion of the road that is outside the park, and would be involved in the burial of line along that section if it were to occur. If the line is not buried outside the park, the NPS would have to bury the first 1,000 feet of line from the power pole in the existing utility corridor to the road corridor in an undisturbed area. The old, creosote treated power poles from the existing utility corridor would be cut down, and flown out by helicopter when funding becomes available.

The line would be buried along the road shoulder in a previously disturbed area. A small bulldozer with a plow blade would be used to plow in the line in a single pass, with some light raking needed to compact the soil back over the narrow trench. Very little surface disturbance would occur with this operation. The line would be attached to the bridge where it crosses the Two Medicine River near Running Eagle Falls turn-out.

Ideally, Qwest or the park would install also phone line in conjunction with Glacier Electric installing powerline. The phone line would be installed about 1 foot above the electric line. In both cases, there would be periodic boxes or pillars. These lines would tie in with the above mentioned lines in the developed area.

Mitigation: Work would be done between May 15 and November 1 to minimize impacts to wildlife. Utility line work would occur mostly within existing utility corridors to minimize impacts to undisturbed areas. An archeologist would monitor excavation activities outside previously disturbed areas to identify archeological resources that may be discovered. Cutting of poles and removal of poles and electric line by helicopter would occur in June, July or August to minimize impacts to wildlife, and flights would occur between one hour after sunrise and one hour prior to sunset. Disturbed areas would be revegetated by the NPS with native plant species. Phone line would be installed concurrently with electric line to avoid additional disturbance in the future. Phone boxes would be painted to minimize visual impacts, or installed underground if funding allows.

Relocate Radio Tower

The NPS proposes to move the existing radio base station, located at the ranger station in the Two Medicine area, to a location where the park can establish better coverage. Placing the base station at the designated park storage yard near the location of the proposed drainfield would improve radio coverage in the area by providing a more direct link to other park radio towers (Figure 2).

The NPS proposes to install a 40-foot self supporting radio tower with a 21.5 foot antenna (total height 61.5 feet) mounted on a concrete base, approximately 9 feet square and 6 feet deep, and an equipment shed (approximately 10 feet square by 8 feet high) to house equipment and the antenna systems for the base station. The antenna would be visible from some locations in the developed area (Figures 3 and 4), but the NPS would look into ways to mask the visibility, such as installing a tower that resembles a dead tree. On completion of the new facility, the antenna and base station would be removed from their current location behind the ranger station. Installation of the new radio tower and equipment shed would disturb approximately 200 square feet.

Mitigation: Work would be done between May 15 and November 1 to minimize impacts to wildlife. An archeologist would monitor excavation activities outside previously disturbed areas to identify archeological resources that may be discovered. The disturbed area behind the ranger station would be restored to grass, and the newly disturbed area would be revegetated by the NPS with native plant species.

Construct New Water Well and Storage

A new well would be drilled along the maintenance road leading to the designated park storage yard in the Two Medicine area (Figure 2). The new well would likely be uphill from the existing wells. A geohydrological study is being conducted to determine the best location for the new well. New water line would be installed from the new well tank to hook into the existing system, likely not more than 500 feet away. Trenches for the new water line would be approximately 3 feet wide, with a maximum disturbed corridor of 8 feet, and would be located along the previously disturbed road corridor. Additional aboveground water storage tanks would be installed to at least double the existing storage. Installation of the new well and storage tanks

would disturb less than 0.1 acre.

Mitigation: Work would be done between May 15 and November 1 to minimize impacts to wildlife. Utility line work would occur mostly within existing utility corridors to minimize impacts to undisturbed areas. An archeologist would monitor excavation activities outside previously disturbed areas to identify archeological resources that may be discovered. Disturbed areas would be revegetated by the NPS with native plant species.

GENERAL MITIGATION MEASURES

If the preferred alternative is selected for implementation, the contractor would be required to comply with the following measures in addition to what is listed under each of the actions in the proposal to protect the environment, including but not limited to:

- Construction activity would be restricted to the period between 7:00 a.m. and 7:00 p.m. to minimize potential disturbance to wildlife.
- Feeding or disturbing wildlife would be prohibited.
- Construction limits would be clearly delineated to contain activities within defined areas.
- All disturbed topsoil and seedbed would be conserved for reuse in site rehabilitation where applicable.
- All construction equipment would be steam cleaned before it enters the park to prevent spread of noxious weeds.
- Silt fencing and other sediment control measures would be used to minimize erosion and sediment delivery to waterways. Debris that may fall into the stream as a result of construction activities would be removed.
- No drainage of oil, hydraulic fluids, anti-freeze, or other chemicals would be permitted in the park.
- No explosive material would be used.
- Based upon results of the identification and evaluation efforts, an archeologist may be required to monitor excavation activities. If previously unidentified cultural resources are identified by the archeologist or contractor, construction activities would cease in the immediate vicinity of the identified resources until Section 106 procedures are complete. The contractor would be permitted to continue work in other areas.
- Additional mitigation measures may be identified in contract specifications.

ALTERNATIVES CONSIDERED BUT REJECTED

Three other alternatives were considered for the radio tower. One was to leave the base station at the ranger station. Necessary radio coverage requires a larger base station which would involve either adding on to the ranger station building or placing a large cabinet inside the existing building. The cabinet would take up most of the available space in the already cramped building. A 200 foot tower would be erected at that location to gain elevation for an improved radio signal. Although the 60 foot antenna would be visible from the preferred alternative location, a 200 foot tower at the ranger station would be visible to a much greater degree. This alternative was rejected because it would have adverse impacts to cultural resources, the viewshed, visitor experience, and park operations.

The second alternative considered was to move the radio tower and base station to the top of the hill behind the ranger station. Although this site would provide the best radio signal, it was rejected because it would require trenching up the hill and away from the previously disturbed road corridor, which would result in greater impacts to undisturbed cultural and natural resources.

The third alternative considered was to move the tower and base station to a site about 300 yards east of the junction with the road to the designated park storage yard , and 20-25 feet north of the entrance road hidden back in the trees to the extent possible. It would be necessary to construct a road to this site. This alternative was rejected because of extensive new impacts to cultural and natural resources that would result.

Another alternative was considered for the water well and storage. The NPS considered using an emergency pumping system to pump water from the lake for potential fire fighting needs. Although this would make additional storage tanks unnecessary, the process of filtering water pumped from the lake during fire emergencies makes it less feasible, and if sprinkler systems were to be installed in the buildings, water storage would be needed to run the sprinklers in case of fire. Therefore this alternative was rejected.

No other alternatives were considered for the phone and electric lines, other than placing them overhead. However it is NPS policy for in park utilities to be as unobtrusive as possible and have the least possible resource impact. (*Management Policies, 2001, Section 9.1.5)* This policy also encourages parks to participate in cost-sharing with municipalities and other in meeting new, expanded or replacement park utility needs. Since these utilities can lie in the same trench as the new sewer lines, it was determined that it would result in the least amount of impact if new lines were buried at the time trenches were open for the new sewer lines. Although alternate routes for the lines could be considered, it was determined that selecting routes outside the existing corridor would result in increased costs and increased adverse impacts to natural and cultural resources. Therefore, no other alternatives were considered in the proposal.

Other alternatives for the septic system would have been to put in a treatment plant. This was rejected because the level of treatment required can be provided with a less costly, simpler technology that results in fewer impacts.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality defines the environmentally preferred alternative as "…the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act's §101." Section 101 of the National Environmental Policy Act states that "… it is the continuing responsibility of the Federal Government to …

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

Upgrading the wastewater treatment system would help protect water quality and visitor experience, thus the preferred alternative meets criteria 1, 2, 3, 4, and 5 better than the no action alternative. Upgrading the electrical and phone utilities would increase safety, thus the preferred alternative meets criteria 2 and 3 better than the no action alternative. Burying the overhead power line would improve aesthetics in the area and help maintain the historic scene, thus the preferred alternative meets criteria 1, 2, and 4 better than the no action alternative. Improving radio communications would benefit public safety, thus the preferred alternative meets criteria 2 and 3 better than the no action alternative. Drilling a new well and providing additional water storage to fight structural fires would increase public safety and help preserve historic buildings, thus the preferred alternative meets criteria 1, 2, 3, and 4 better than the no action alternative. The preferred alternative, to upgrade utilities at Two Medicine, is the environmentally preferred alternative.

Table 1. Comparison of Alternatives

Issue	No Action Alternative	Preferred Alternative
Aging and multiple individual septic systems that are releasing effluent into the groundwater	Utilities in Two Medicine would not be improved. Groundwater would continue to regularly flood the current septic system because the water table is higher than the current septic field. The existing septic systems would continue to release effluent into the groundwater.	A new drainfield would be constructed to serve comfort stations in the campground and picnic area, housing including the new duplex and new fire cache. One septic system would replace multiple systems that are obsolete. The effluent would be disposed of in a properly located and designed site.
Failing Electric Lines and Inadequate Telephone Lines.	Underground electric lines would continue to deteriorate, resulting in power outages. Access to outside telephone lines would continue to be limited and no internet access would be available.	Underground electric lines would be replaced, improving electrical service in the area. New telephone lines and additional capacity would be installed in the same trenches as electrical lines to accommodate future expansion of the telephone system and provide internet access.
Overhead Electric Lines and Interruption of Service	Overhead electric lines would remain a visual detractor from the beauty of the Two Medicine area and continue to be subject to tree falls, heavy snow loads and poles washing out near Dry Creek causing electrical failures and loss of service.	Existing overhead electric lines would be buried, providing protection for the lines and eliminate loss of electrical power from tree falls, heavy snow loads and washing out of poles.
Limited Radio Communications	Radio communications would continue to be limited in the Two Medicine Valley, contributing to life safety issues.	The new proposed location would improve radio coverage in the valley and resolve life safety issues. A new concrete base and antenna would be constructed.
Lack of Adequate Water Storage and Decreasing Availability of Water.	Water storage would remain inadequate for structural fire fighting and continue to be taxed by demands from the daily operation.	A new well would be drilled to provide additional flow, and a new aboveground storage tank would be constructed to provide water for structural fire fighting.

Table 2. Summary Comparison of Impacts

Impact Topic	No Action Alternative	Preferred Alternative
Soils	Impacts to soils, if any, from the no action alternative would be negligible to minor, site specific, short- to long-term, and adverse due to erosion around telephone poles and impacts from the existing drainfields. Because there are no new impacts resulting from this alternative, there would be no cumulative impacts.	The overall impacts to soils resulting from the combination of projects proposed in the preferred alternative would be site specific, minor, long-term adverse impacts. Overall impacts from the preferred alternative in conjunction with recent and potential projects would be site specific, minor, long-term and adverse.
Vegetation	Impacts to vegetation from existing conditions would continue to be negligible to minor, site specific, long-term, and adverse primarily due to continued vegetation clearing along the powerline corridor. Because there would be no new impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.	The overall impacts of the actions for installing new utilities in the preferred alternative would be minor, site-specific, short-term adverse impacts. There would be a minor, site specific, long-term beneficial impact to more than 10 acres of utility corridor if the existing overhead powerline were removed, thus eliminating the need to clear the corridor of trees. Mitigation would include revegetating utility corridors with native plants, monitoring disturbed areas for weed infestations, and treatment of noxious weeds. Overall cumulative impacts from the preferred alternative would be site specific, minor, long-term and adverse.
Wildlife	No construction activities would occur, and no new facilities would be constructed at the periphery of the developed area, therefore no new impacts to wildlife would be expected. Because there would be no addition of new impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.	Relocation of the radio tower would have negligible to minor, long-term, site specific, adverse impacts on wildlife that use that corridor for traveling through the valley. As a result of the disturbed nature of the sites and adjacent development, long-term impacts of the proposed projects would be negligible to minor, site specific and adverse. Short-term impacts associated with construction would be localized and negligible if work occurs during visitor season of May 15 through November 1. If construction occurs outside these dates, short-term adverse impacts would be of moderate intensity (construction would not occur in winter at this site). Cumulative effects would be site specific, minor, short-term and adverse if construction occurs within the proposed dates.
Threatened and Endangered Species and Species of Concern	No construction activities would occur, so no new impacts to threatened and endangered species or species of concern would be expected. Because there would be no addition of new impacts as a result of this alternative,	Impacts to bald eagles and Canada lynx would be negligible. There would be no effect to wolves. There could be negligible to minor, short- or long-term, site specific adverse impacts to grizzly bears and bighorn sheep. The

Impact Topic	No Action Alternative	Preferred Alternative
	there would be no cumulative impacts between this and any other project.	proposed action may affect, but is not likely to adversely affect, grizzly bears as long as work occurs between May 15 and November 1. The long- term effects of the proposed action on all sensitive species of wildlife would be negligible if work occurs between May 15 and November 1. Short- term impacts to species of concern from displacement and disturbance due to construction activities would be negligible during the proposed dates. Cumulative effects are expected to be minor, short- term, site-specific, and adverse for grizzly bears.
Water Quality	The no action alternative would result in moderate, localized, long-term adverse impacts on water quality due to sediment releases caused by continued use of existing older sewer lines and drain fields. Cumulative impacts of the no action alternative on water quality would be moderate, localized, long-term, and adverse.	The preferred alternative would result in moderate, localized, long-term beneficial impacts to water quality. Cumulative impacts of the preferred alternative on water quality would be minor, localized, long-term, and adverse.
Historic Buildings and Structures	Since there would be no action, there would be no direct impacts to historic buildings and structures. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review. There would be no new cumulative effects.	The preferred alternative would have long-term, minor adverse affects on the Two Medicine Dining Hall. For Section 106 purposes, the finding would likely be "no adverse effect." The preferred alternative would have short-term, minor adverse impacts on the Swanson Boat House and the Two Medicine Ranger Cabin. For Section 106 purposes, the finding would likely be "no adverse effect." The cumulative impact of this project combined with others in the area would be minor to moderate, positive and adverse, and long-term.
Archeological Resources	Since there would be no action, there would be no direct impacts to archeological resources. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review. There would be no new cumulative effects.	Based upon current cultural resource survey information, it is believed the project would have minor impacts on archeological resources. For Section 106 purposes, the finding would likely be "no adverse effect." Previously undisturbed areas would be surveyed for archeological sites. If archaeological resources are discovered during the survey, Section 106 procedures would be undertaken. If it is determined that the affect would be adverse and major, the project would be stopped and additional NEPA analysis would be conducted. There would be

Impact Topic	No Action Alternative	Preferred Alternative
		no cumulative impacts.
Park Operations and Public Health and Safety	The no action alternative would result in minor to moderate, localized, long-term adverse impacts to park operations and public health and safety. Cumulative effects of failing to upgrade utilities would have moderate, localized, long- term, adverse impacts on park operations and public health and safety.	The preferred alternative would have moderate, long- term, localized, beneficial impacts to public health and safety. Cumulative effects would be minor, long- term and beneficial to park operations, and minor, long- term localized and adverse to public health and safety.
Visitor Experience	There would continue to be negligible to minor, long- term, localized adverse impacts on the visitor's experience due to electric power outages, limited water availability, and limited ability to communicate via telephone outside the valley. Combined with past and future construction, the no action alternative would continue to have negligible to minor, long- term localized adverse impacts on visitor experience.	Overall impacts to visitor experience from the proposed projects would be negligible to minor, site- specific, short - term and adverse due to temporary campground and road closures or delays, and long- term due to potential visibility of the radio tower from some locations. There would also be beneficial long- term impacts due to increased availability of water. Combined with past and future construction projects, the proposed construction activities would have minor to moderate, short- term, localized adverse impacts to visitor experience.

AFFECTED ENVIRONMENT

NATURAL RESOURCES

SOILS

There are two major soil groups to be impacted by construction proposed in this EA. Soils surrounding the main developed area are classified as being Rocky and Sandy Alluvial Forest Soils of Fans and Terraces (Dutton et al. 2001). They are described as deep, well-drained forest alluvial soils, dominated by sandy loam textures. These soils have low available water holding capacity. The parent material is gravelly, sandy and loamy alluvium, deposited by current streams in recent time. The high terraces were deposited by glacial outwash streams at the end of the last ice age. Rock types in both soil types are predominantly quartzite and argillite with some limestone and occasional granite fragments. Most soils in this group are classified as loamy-skeletal, mixed Typic Dystrocryepts.

Productivity and revegetation potential are described as high in the surface soil and moderate in the subsoil because of increased rock content and decreased water and nutrient holding capacity. The soil is rated as well suited to road and trail construction due to the high subsoil rock content and good drainage. The soil has moderate erosion potential and high susceptibility to weed infestation when disturbed. There is moderate potential for waste disposal using traditional septic tank and drainfield systems. These soils have rapid permeability and provide poor wastewater filtration. Water quality impacts may be a concern in these soil types.

Soils along the entrance road and in the vicinity of the designated park storage yard are classified as Mixed Glacial and Colluvial soils of narrow glaciated valleys, of which the glacial soils are normally classified as loamy-skeletal, mixed Typic Haplocryepts, and the colluvial soils are loamy-skeletal, mixed Typic Dystrocryepts (Dutton et al. 2001). Glacial drift has very stony silty clay loam to sandy loam textures, while colluvium has very gravelly to extremely gravelly sandy loam or loam textures. Surface layers often contain volcanic ash-rich wind deposits, and vegetation is typically dominated by conifer forest. Stream terraces along Appistoki Creek would have extremely gravelly sandy loam alluvium with riparian vegetation. The glacial soils have high potential for waste disposal due to medium textures, while the colluvial soils have moderate potential due to high rock content, and the alluvial soils have low potential due to flooding, rapid permeability and high groundwater. The glacial and colluvial soils have high to moderate revegetation potential, moderate road and trail construction potential, moderate susceptibility to weed infestation, and high erosion potential. The alluvial soils have low revegetation potential, low road and trail potential, high susceptibility to weed invasion, and moderate erosion potential.

VEGETATION

Vegetation in the Two Medicine developed area is mainly conifer forest dominated in this area by subalpine fir (*Abies lasiocarpa*) and limber pine (*Pinus flexilis*). The understory is dominated by serviceberry (*Amelanchier alnifolia*), shiny-leaf spirea (*Spirea betulifolia*), bluebunch wheatgrass (*Agropyron spicatum*), sedges (*Carex* spp.), and timber oatgrass (*Danthonia intermedia*). Other common species in the area include mountain ash (*Sorbus scopulina*), snowberry (*Symphoricarpos albus*), blue-leaf strawberry (*Fragaria virginiana*), yellow beardtongue (*Penstemon confertus*), Idaho fescue (*Festuca idahoensis*), and rough fescue (*Festuca scabrella*) (Asebrook and Lamb 1994). Species in the campground likely to be impacted by utility lines include subalpine fir, mountain ash, globe huckleberry (*Vaccinium membranaceum*), false huckleberry (*Menzesia ferruginea*), and beargrass (*Xerophyllum tenax*).

The proposed drainfield site is currently sparsely vegetated and shows evidence of prior soil disturbance. Native species present include regenerating black cottonwood (*Populus balsamifera*), and a few very small lodgepole pine (*Pinus contorta*), along with a small sagebrush (*Artemisia* sp.), yarrow (*Achillea millefolium*), silky phacelia (*Phacelia sericea*), stonecrop (*Sedum lanceolatum*), blue-leaf strawberry, and smooth aster (*Aster laevis*). Several exotic species are prevalent on the site including Canada bluegrass (*Poa compressa*), yellow clover (*Trifolium agrarium*), sulpher cinquefoil (*Potentilla recta*), spotted knapweed (*Centaurea maculosa*), and flannel mullein (*Verbascum thapsus*). The proposed lift station site is located about 10 feet off the road within the road prism and dominated by regenerating black cottonwood and a similar sparse mix of native and exotic herbaceous species as described above.

WILDLIFE

The Two Medicine developed area is within contiguous habitat for a wide variety of wildlife species from hoofed mammals such as mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*) and moose (*Alces alces*) to carnivores including grizzly bears (*Ursus arctos*), Canada lynx (*Lynx canadensis*), wolverine (*Gulo gulo*), marten (*Martes americana*), black bears (*Ursus americanus*), coyotes (*Canis latrans*), and northern goshawks (*Accipiter gentilis*). The interspersion of mature conifer forest, grasslands, cottonwood and shrubby riparian sites in the developed area plus adjacent avalanche chutes, shrubfields, aspen parklands, and riparian shrub and marsh habitats along streams, ponds and lakeshores provide a mix of productive areas that contribute to the wildlife diversity in the area and provide essential spring and fall grizzly bear habitat. Higher elevations in the Two Medicine area provide denning habitat for grizzly bears.

The Two Medicine drainage also contains important fall, winter, and spring habitat for bighorn sheep (*Ovis canadensis*), mountain goats (*Oreamnos americanus*), and other ungulates. An important grizzly bear and bighorn sheep travel corridor has been identified within Two Medicine's visitor service zone at the foot of Two Medicine Lake adjacent to the developed area and campground. Bighorn sheep have been observed licking wood ashes in the designated park storage yard during the spring and fall and there are concerns this behavior may result in habituated sheep that are more susceptible to mortality along the road or other conflicts with people. Nesting and foraging habitat for bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), common loons (*Gavia immer*), harlequin ducks (*Histrionicus histrionicus*), ruffed grouse (*Bonasa umbellus*) and other rare and sensitive bird species is found in the general area. Canada lynx have occasionally been sighted in the valley and family groups have been observed in recent years. Gray wolves (*Canis lupus*) have been infrequently observed in the area, but denning has not been documented.

Red squirrels (*Tamiasciurus hudsonicus*), Columbian ground squirrels (*Spermophilus columbianus*), and voles are common in the area, and attract pine martens (*Martes martes*), weasels (*Mustela* spp.), and other carnivores. Northern goshawks, osprey (*Pandion haliaetus*) and other raptors have been observed in the area, and may nest. A variety of small birds nest in the area, including calliope hummingbird (*Stellula calliope*), three-toed woodpecker (*Picoides tridactylus*), red-breasted nuthatch (*Sitta canadensis*), Swainson's thrush (*Catharus ustulatus*), MacGillivray's warbler (*Oporornis tolmiei*), western tanager (*Piranga ludoviciana*), and dark-eyed junco (*Junco hyemalis*). Common mergansers (*Mergus merganser*), Barrow's goldeneye (*Bucephala islandica*), and bufflehead (*B. albeola*) are the more common ducks that nest in the area and forage on Two Medicine and Pray Lakes. Important breeding habitat for tailed frogs (*Ascaphus montanus*), Columbia spotted frogs (*Rana luteiventris*), boreal toads (*Bufo boreas*) and long-toed salamanders (*Ambystoma macrodactylum*) occurs in the many wetlands and riparian areas found throughout the drainage.

THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN

There are five threatened or endangered terrestrial species listed by the U.S. Fish and Wildlife Service (USFWS) in Glacier National Park. They are the threatened bald eagle *(Haliaeetus leucocephalus)*, Canada lynx *(Lynx canadensis),* gray wolf *(Canis lupus*), grizzly bear *(Ursus arctos)*, and bull trout (*Salvelinus confluentus*). All but the bull trout may occur in the project area.

Bald Eagle

Bald eagles use portions of Glacier National Park on a year-round basis as nesting and wintering residents (Yates 1989), and as seasonal migrants (McClelland et al. 1994, Yates et al. 2001). There are currently 12 known bald eagle breeding areas in the park, including one in the Two Medicine Valley. The *Montana Bald Eagle Management Plan* (Montana Bald Eagle Working Group 1994) provides general guidance and Glacier National Park's *Bald Eagle Operational Plan and Habitat Management Guidelines* (NPS 1999b) provides site-specific information and outlines habitat management actions for the protection and perpetuation of bald eagle use areas in the park.

The nearest nest site is on Lower Two Medicine Lake, approximately 2 miles from the project area. One young was fledged from this nest in 2003; since the nest was discovered in 1998, young have been produced every year but two. There are no known bald eagle roost sites near the project area, and foraging that occurs along the shore of Two Medicine Lake, within ¼-mile of the project area, is probably sporadic and mostly during the spring and fall. Frequent use by foraging bald eagles has not been documented; however, no studies or systematic observations have been made in the area to document eagle use, and use of the area is undoubtedly more extensive than has been documented. The primary foraging area is probably near the nest site on Lower Two Medicine Lake, with secondary seasonal use sites on Two Medicine Lake. Some winter use has been documented in the Two Medicine Valley, but this activity may be associated with early nesting by resident eagles.

Canada Lynx

On April 24, 2000, the Canada lynx was listed as a threatened species in the coterminous United States. The U.S. Fish and Wildlife Service concluded that the population was threatened by human alteration of forests, low numbers as a result of past overexploitation, expansion of the range of competitors, and elevated levels of human access into lynx habitat (USFS and USFWS 2000).

Lynx habitat generally is described as climax boreal forest with a dense undercover of thickets and windfalls (Ruediger et al. 2000). Advanced successional stages of forests and dense conifer stands often are preferred habitats of lynx for denning and foraging respectively. Lynx generally forage in dense young conifer forests especially where their primary prey, snowshoe hare (*Lepus americanus*), is abundant. Ongoing research in Montana (J. Squires, personal communication, 2003) has documented the importance of some mature high elevation spruce-fir forests to lynx. They not only provide denning habitat but some spruce-fir stands are also foraging habitat, especially in winter, with stable and relatively high densities of snowshoe hares. Other prey includes red squirrels, Columbian ground squirrels, grouse, martens, and voles. Travel corridors are thought to be an important factor in lynx habitat because of their large and variable home ranges, generally 8-738 square kilometers (Ruediger et al. 2000). Lynx are most susceptible to disturbance during the denning period and while newborns are developing (May–August) (Claar et al. 1999).

Concurrent with the listing process, a national interagency Canada Lynx Conservation Assessment and Strategy was developed to provide a consistent and effective approach to conservation of the species. All federal land management agencies, including the National Park Service, were participants. The Canada Lynx Conservation Assessment and Strategy identifies 17 risk factors that could adversely affect lynx mortality, productivity and movements (Ruediger et

al. 2000). Within Glacier National Park, the primary risk factors for lynx are: wildland fire management policies that preclude natural disturbance processes, roads and highways, winter recreational trails, habitat degradation by non-native invasive plant species, incidental or illegal shooting and trapping, competition or predation as influenced by human activities and human developments that degrade and fragment lynx habitat.

The U.S. Forest Service and U.S. Bureau of Land Management have entered into conservation agreements with the U.S. Fish and Wildlife Service, agreeing to consider conservation measures in the Canada Lynx Conservation Assessment and Strategy when designing and implementing activities that might affect lynx or their habitat (Ruediger et al. 2000). The National Park Service is currently in the process of crafting a Conservation Agreement for Canada lynx with the U.S. Fish and Wildlife Service. Although the National Park Service has not yet signed the Conservation Agreement for the Canada lynx, Glacier National Park considers the recommendations in the Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) prior to undertaking any new activities in lynx habitat. Generalized potential lynx habitat has been delineated in Glacier National Park, including areas encompassing the project area. More precise identification of the components of essential lynx habitat will depend on completion of a detailed vegetation map of the park, results of on-going lynx research in the Northern Rockies, and ultimately lynx research in Glacier.

Historically, lynx were considered "more or less common" throughout the area of Glacier National Park (Bailey and Bailey 1918). Documented sightings declined during the 1970s and 1980s and increased during the 1990s (NPS files); however, sightings may not be particularly sensitive to population changes and should be interpreted with caution as they may reflect little more than increased effort in finding lynx sign. Systematic lynx surveys involving snow tracking and DNA sampling were initiated in 1994 and 1999 respectively; lynx were detected in many drainages throughout the park including the St. Mary, Two Medicine, McDonald and Many Glacier Valleys, although no estimates of population numbers nor trend were attempted. No surveys have been conducted in the immediate project area, though there are recent sighting and track records.

Gray Wolf

Wolves have been resident in the North Fork drainage, on the west side of the park, since naturally re-colonizing the area in the 1980s. Wolves have also been reported in all major drainages in the park in recent years including the Two Medicine Valley (NPS files). Recent sightings and historic records for the east side of the park suggest that wolves are in the process of re-colonizing the area.

Management and recovery of wolves in the Northwest Montana Recovery Zone (of which Glacier National Park is a part) is directed by the *Northern Rocky Mountain Gray Wolf Recovery Plan* (USFWS 1987). Inadequate prey densities and a high level of human persecution are the two most important factors limiting wolf distribution and preventing a complete recovery of wolf populations in the Northern Rocky Mountains (USFWS 1987). Glacier National Park's predominantly natural landscape contains some of the most secure and productive wolf habitat in the Northwest Montana Recovery Zone. Despite fluctuating wolf numbers since 1986, Glacier's established wolf population continues to serve as a source for natural re-colonization in northwest Montana and southern Canada (Boyd-Heger 1997).

There has been no recent wolf activity documented near the project area. Wolves are wide-ranging animals and may pass through the Two Medicine area, but there are no known den or rendezvous sites, nor foraging activity.

Grizzly Bear

Glacier National Park is part of the Northern Continental Divide Ecosystem (NCDE) recovery area for the threatened grizzly bear. The NCDE is especially important for grizzly populations

because it adjoins occupied grizzly bear habitat in Canada. Preliminary results from a recent study using sign surveys and DNA fingerprinting indicate that in 2000, there were a minimum of 197 individual grizzly bears inhabiting the Greater Glacier Area with an estimated population of 234-339 individuals (Kendall and Waits 2002). These preliminary results are from a recent study using non-invasively collected hair samples and DNA fingerprinting (Kendall and Waits 2002). Exact population estimates and trends are difficult to establish due to the lack of intensive population level research within this ecosystem and the inherent problems of counting the widely distributed and reclusive grizzly bear. The *Grizzly Bear Recovery Plan* (USFWS 1993) and the *Glacier National Park Bear Management Plan* (NPS 2001) serve as guidelines for management of grizzly bears in Glacier National Park. The plans outline actions that are required to protect and recover the federally listed grizzly bear.

Grizzly bear habitat is found throughout the park and ranges from the lowest valley bottoms to the summits of the highest peaks. Grizzly bears require large areas of undeveloped habitat (including a mixture of forests, moist meadows, grasslands, and riparian habitats) and have home ranges of 130 to 1,300 square kilometers (USFWS 1993). A radio-collared female grizzly, with cubs, was documented using 220 square kilometers as a home range in 1998 and 1999 in the McDonald Valley of Glacier National Park (NPS files).

Grizzly bear seasonal movements and habitat use are tied to the availability of different food sources. In spring, grizzly bears feed on dead ungulates and early greening herbaceous vegetation at lower elevations (Martinka 1972). During the summer, some bears move to higher elevations in search of glacier lilies and other roots, berries, and army cutworm moths (*Euxoa auxiliaris*). During the huckleberry (*Vaccinium* spp.) season, bears often concentrate in the Apgar Mountains (Kendall 1986), Belton Hills, Snyder Ridge, the Many Glacier Valley, the Two Medicine Valley, and other areas. Avalanche chutes provide an important source of herbaceous forage for grizzly bears in the early summer and fall (Rockwell 1995). During the winter, grizzly bears hibernate in dens away from human disturbance, typically at higher elevations on steep slopes where wind and topography cause an accumulation of deep snow (Mace and Waller 1997).

In addition to diverse foraging habitat, grizzly bears require natural habitat that provides connectivity, or travel corridors, between foraging sites. Examples of these types of travel corridors are found in the McDonald Valley near Apgar and along Lake McDonald, in the Two Medicine Valley adjacent to the campground, and in the Many Glacier Valley near the Swiftcurrent Motor Inn and Many Glacier Hotel. Grizzlies are wide-ranging and require a substantial amount of solitude from human interactions (Brown 1985).

Grizzly bear/human interaction is a management concern that can threaten the safety of visitors as well as that of wild bears. Bears that are familiar with humans have the potential to become habituated to human presence and may become attracted to visitor use areas (T. Manley, personal communication). Frequenting human use areas may further habituate bears to the presence of people and could increase the risk of contributing to bear/human encounters. Habituated bears are at great risk of also becoming food-conditioned and may aggressively seek human food at developed areas. Habituated bears are usually relocated or hazed from developed areas, and food-conditioned bears are oftentimes removed from the population (T. Manley, personal communication). There is evidence to suggest that females with cubs are more susceptible to habituation and food conditioning due to habitat partitioning and the food demands on reproducing females (Mattson et al. 1987). These factors often put females with cubs in proximity to quality habitat nearer developed areas and human use areas (T. Manley, personal communication).

Glacier National Park was placed into grizzly bear management situations (MS1 and MS3) in accordance with the Grizzly Bear Recovery Plan (USFWS 1993). Most of the park is designated

as MS1 habitat while developed, front-country areas are managed as MS3 habitat. Glacier National Park is encompassed by 5 Bear Management Units (BMUs) and 41 internal Bear Management Zones (BMZs). Management direction for MS3 areas specifies that grizzly bear habitat maintenance and improvement are not the highest management considerations; grizzly bear presence will be actively discouraged; any grizzly involved in a grizzly-human conflict will be controlled. The proposed project would occur within the developed area of Two Medicine, which falls under MS3.

The entire project area is in situation 3 grizzly bear habitat. Grizzly bears have been documented in or near the project area, but are generally precluded from the area by human activity during the primary visitor use season from June to September, and most use occurs during the spring and fall. There have been grizzlies habituated to human presence or conditioned by human food in the Visitor services zone at Two Medicine. However, management efforts attempt to minimize bear-human conflict in developed areas by reducing the availability of human food and garbage attractants.

Optimal grizzly bear habitat is a mosaic of forest and range conditions encompassing a broad range of forest, woodlands, shrublands, talus, and grasslands. The Two Medicine Valley contains an excellent juxtaposition of these highly productive seasonal grizzly bear habitats. The valley bottom and numerous avalanche chutes provide many favored foods of grizzly bears, especially in spring and fall when snow cover makes food sources at higher elevations unavailable. Whitebark pine nuts and army cutworm moths, important summer and fall food items, are available at higher elevations throughout the valley. Numerous bears pass close by the Two Medicine developed area (using a well-documented wildlife travel corridor) during their annual movements to and from seasonal food sources. The Two Medicine developed area occupies a large expanse of suitable grizzly bear habitat. The juxtaposition of foraging habitats (riparian woodlands, wetlands, and meadows) with dense forest cover for resting (day beds) makes this area ideal spring and summer grizzly bear habitat.

Observations of grizzlies or their sign in the developed area are most frequent outside of the summer visitor use season indicating a probable avoidance of the area when human presence is greatest. Grizzly bear dens are generally found at upper elevations, well removed from this area. Actions that adversely affect grizzly bears include construction or recreational activity near foraging, day bed, denning areas, or movement corridors, or development that modifies habitat.

A study of grizzly bear habitat use in the Two Medicine drainage found that visitor activities overlapped significantly with grizzly bear use of habitats (Baldwin et al. 1985). Trails and campgrounds in the drainage are located in habitats that are of the highest value to grizzly bears such as lakeshores and riparian corridors. Although grizzly bears concentrate their activity in these essential habitats when human use is lowest (during the early morning, evening and night or during spring and fall) encounters between bears and humans frequently occur (Baldwin et al. 1985).

Species of Concern

Species of concern to Glacier National Park are those species that are rare, endemic, disjunct, vulnerable to extirpation, in need of further research, or likely to become threatened or endangered if limiting factors are not reversed. Likewise, a species may be of concern because of characteristics that make them particularly sensitive to human activities or natural events. In addition, species of concern may also include big game, upland game birds, waterfowl, carnivores, predators, and furbearers whose populations are protected in the park but subject to hunting and trapping outside of the park. The following wildlife species of concern are known to occur in the project area.

Wolverine. Habitats required: forest mosaic and subalpine talus sites in cirque basins. Wolverine

denning areas are generally found near treeline and are unlikely to occur near the Two Medicine developed area. Based on information gathered during track surveys, wolverines appear to travel widely throughout the Two Medicine Valley and developed area in winter in search of ungulate carrion. Summer use of the area is little understood due to the lack of research; an ongoing study may shed some light on how wolverines make use of the Two Medicine area. Wolverines have been observed within the Two Medicine developed area, or in the immediate vicinity. Activities that would negatively affect wolverine include the displacement of wintering ungulates, the fragmentation of wildlife movement corridors, or altered visitor use patterns.

Rocky Mountain Bighorn Sheep. Habitats required: mid to high elevation forest and range mosaic. Conifer encroachment in subalpine and alpine meadows due to fire suppression has likely affected bighorn sheep use of these habitats in the park. Existing development in the park has resulted in habitat fragmentation and human disturbance. Human disturbance during sensitive periods such as lambing, rutting, transitioning between seasonal ranges, and wintering has undoubtedly had a widespread effect on bighorn sheep in the park. The Two Medicine drainage contains important fall, winter, and spring habitat for bighorn sheep, and they may cross through the project area during spring, early summer or fall. An important bighorn sheep travel corridor has been identified within Two Medicine's visitor service zone at the foot of Two Medicine Lake adjacent to the developed area and campground. In the spring of 2001 and fall of 2003 bighorn sheep were seen foraging in the burn pile at the boneyard near the proposed site of the radio tower and new drainfield. To discourage habituation of bighorn sheep to this maintenance area, the NPS will identify and eliminate the source of the attractant, or make it unavailable to wildlife.

Willow Flycatcher. Habitat required: stream or lake riparian sites with extensive shrubby willows. This species is rare in the area due to limited habitat.

Fisher, Northern Goshawk, Pileated Woodpecker, Hammond's Flycatcher, Winter Wren, Brown Creeper, Great Gray Owl, Boreal Owl, Three-toed Woodpecker, Clark's Nutcracker, and Ruffed Grouse. Habitats required: broad-elevation old forest. These species range from rare and secretive to fairly common in the Two Medicine Valley. The ongoing operation of the visitor services facilities in the Two Medicine developed area would continue to alter the high value riparian and upland forest communities found in this area. Large snags and dying trees (Douglas fir and limber pine, among other species) identified as safety hazards would continue to be removed from the area, thus reducing important habitat for these species.

Golden Eagle. Habitats required: broad elevation, open terrain, cliffs, old forest. Golden eagle nesting areas occur throughout the Two Medicine Valley, and golden eagle use of habitats adjacent to the Two Medicine developed area has likely been affected by high levels of human activity in these productive nesting and foraging habitats.

Harlequin Duck. Habitats required: fast moving streams through riparian or old forests, and lakes. Continuation of early season maintenance activity at the Two Medicine developed area would not change the existing conditions associated with this species. Harlequin duck pairs have consistently been observed during the breeding season on Two Medicine Lake and Creek and Pray Lake within the developed area in most years. Degradation of riparian habitats and human disturbance along the creek and lakeshore has likely affected harlequin duck use of these habitats.

Common Loon, Barrow's Goldeneye, and Hooded Merganser. Habitats required: streams and lakes. Existing impacts associated with concentrated visitor use at the Two Medicine developed area would continue to affect these species. Degradation of shoreline habitats and human disturbance on or near Two Medicine Lake has likely affected use of these habitats by these species.

Lazuli Bunting and Calliope Hummingbird. Habitats required: early seral montane and lower montane, shrub-dominated conditions in forested environments (Calliope hummingbirds also require nectar-producing flowers). Reduction of shrubs in early-seral vegetation types due to altered natural disturbance regimes (fire and flood) has likely affected Lazuli bunting and Calliope hummingbird use of habitats in developed areas of the park.

Veery, and Red-Eyed Vireo. Habitats required: old deciduous forest, riparian. Existing development at Two Medicine developed area has already affected the deciduous riparian forest within the Appistoki Creek and Two Medicine Lake floodplain. Development in this forest type has resulted in the permanent removal of riparian vegetation including deciduous tree species and the alteration of natural hydrological processes necessary for the maintenance of riparian woodland vegetation. Old forest components such as snags, dying trees, and downed logs would continue to be removed to mitigate human safety concerns in and around buildings, roads, and parking lots. Habitat for these species has been degraded by human disturbance and development in the Two Medicine developed area.

American White Pelican and Horned Grebe. Habitats required: lakes, ponds, rivers, and streams for staging during migration. These species are transients that do not nest in the park (or in the case of the horned grebe, nesting is possible but unconfirmed). Water bodies in the park provide temporary stopovers for migratory birds en route to breeding or wintering territories elsewhere. Degradation of riparian habitats and human disturbance at Two Medicine Lake has likely affected use of these habitats by the species listed above.

Columbia spotted frogs, tailed frogs and boreal toads. These species occur in the Two Medicine drainage in areas of the Two Medicine developed area.

WATER QUALITY

The Two Medicine visitor service zone is bordered by Two Medicine Lake to the west, Two Medicine Creek to the north, and Appistoki Creek to the south and east. Appistoki Creek originates near Appistoki Peak and runs through the developed area. Appistoki Creek is a fairly small creek that runs subsurface in most fall and winter periods. The full pool elevation of Two Medicine Lake is 5,164 feet, while the housing site is about 5,199 feet. Alluvial material in the project area could either be a result of past glacial deposits or flooding of Appistoki Creek prior to park records.

The monitoring program (Ellis et al. 1990) determined that the lake has extremely good water quality with no measurable pollutants. Two Medicine Lake contains few dissolved solids because of the low dissolution rates of the underlying bedrock. It has very little buffer capacity and is extremely sensitive to acidic deposition. It is very low in nutrients and productivity because of low phosphorous and would be extremely sensitive to phosphorous loading.

Potable water for the developed area is obtained from a well located east of the area at an elevation of 5,270 feet. Near the well there are two 10,000 gallon storage tanks and a chlorination building.

CULTURAL RESOURCES

Historic Buildings and Structures. The Great Northern Railway, and its subsidiary, Glacier Park Hotel Company, built the Two Medicine Chalets in 1914. More than ten buildings comprised the complex designed by architect Samuel Bartlett. The large chalet complex sat on the edge of Two Medicine Lake with commanding views of the surrounding mountains. Other park concessionaires, the Park Saddle Horse Company and the Swanson Boat Company, also provided services out of the Two Medicine area. Changing visitation use and lack of

maintenance eventually resulted in removal of most of the Two Medicine Chalets complex and other concessionaire buildings. Only two concessionaire-built historic buildings remain. The Two Medicine Chalet Dining Hall (Camp Store) is listed in the National Register of Historic Places (1984) and is a designated National Historic Landmark (1987). The Swanson Boat House is listed in the National Register of Historic Places (1995). A wildland fire in 1919 destroyed the original National Park Service Two Medicine Ranger Cabin. Construction of a replacement cabin was begun in 1919, but not finished until 1921. The Ranger Cabin (also known as the Camptender Cabin), located within the Two Medicine Campground, is listed in the National Register of Historic Places (1995).

The Two Medicine Chalet C, Generator House, and two Piers were determined not to meet the criteria for listing in the National Register of Historic Places. (Consensus determination of eligibility, Montana State Historic Preservation Officer, 1995.) The Appistoki Creek Bridge, constructed in 1928, is the only know historic feature in the Two Medicine developed area that remains unevaluated for listing.

The Two Medicine area saw major development during the first half of the 1960s. The Two Medicine Campground water and sewer system were reconstructed in 1960, followed the next year by reconstruction of the roads and parking areas. New campground comfort stations also were constructed. Park day labor forces installed picnic tables and fireplaces in 1961 and 1962. An employee triplex and a small ranger station were added in 1965. Glacier Electric Cooperative installed the overhead power line in 1966.

The campground and other buildings are not yet 50 years old, which is typically the minimum age for properties to be considered eligible for listing in the National Register of Historic Places. For a property achieving significance within the past 50 years, it must be of exceptional importance. The post-1960 Two Medicine properties are typical Mission 66-era developments and do not possess architectural or engineering qualities or associations of exceptional significance. The Montana State Historic Preservation Office, National Register Coordinator agrees with the park's evaluation of these properties.

Archeological Resources. *Early* humans have utilized the Glacier National Park area since about 10,000 years ago. Archaeological evidence shows seasonal use of park areas for hunting, fishing, and plant harvesting. Early people also used some valleys and mountain passes as travel corridors. In late prehistoric and early historic times, the Kootenai, the Pend d'Oreille, and the Blackfeet frequented the Two Medicine area.

A 1978 survey of the Two Medicine Lake Area by the Midwest Archeological Center (Guthrie 1978), included the proposed project area. A 1992 survey by the Midwest Archeological Center (Connor 1996) inventoried a portion of the project area.

In 1994, Dr. Brian Reeves (1996) conducted an archaeological survey of the Two Medicine Basin. Areas examined included the reaches of Two Medicine Creek and the north shore of Lower Two Medicine from Running Eagle Falls downstream to the Glacier National Park boundary. Surfaces associated with trails around Two Medicine Lake and Upper Two Medicine, Bighorn Basin, and Cobalt Lake were also examined.

These surveys document the existence of archeological sites within or near the area of potential effect of the project.

OTHER RESOURCES

PARK OPERATIONS AND PUBLIC HEALTH AND SAFETY

The Two Medicine area contains a visitor service zone, a day use zone, a rustic zone, and a backcountry zone. The proposed projects would occur within the visitor service zone, which includes the entrance road, picnic area and campground, ranger station, concession facilities, Lower Two Medicine Lake, and administrative facilities at Two Medicine Lake (NPS 1999a).

Existing structures include the General Store, Comfort Station, Ranger Station, Boat House and Boat Concession Housing. The General Store and Boat House are historic structures. The Comfort Station intrudes on the historic scene. Two Medicine is closed to vehicles during the winter months.

As stated in the park's Draft Commercial Services Plan (NPS 2003), the overall objectives for the Two Medicine developed area are to comply with life safety, accessibility and building codes; reinforce and maintain the historic and architectural character, and the cultural landscape; promote pedestrian use of the area; enhance visitor services by improving existing visitor services, scenic views and experiences along the shoreline, orientation, information and interpretive opportunities, and a sense of arrival.

Approximately twenty seasonal positions are staffed in the Two Medicine Subdistrict during the summer season. Most area employees live off site and commute to their respective jobs. Recently a duplex was constructed for seasonal employee housing. During the visitor season (June – September) there would normally be an average of five to six uniform personnel on duty along with two maintenance persons. Staff are responsible for management of the campground, buildings and utilities, administration, resource and public protection, and public education among other duties. Emergency medical response, search and rescue operations, and fire protection are key duties.

Park operations in the area include maintenance of the existing utility systems. The sewer system currently involves several separate septic systems in the campground area, which are old and are not functioning properly. The water system includes two wells which provide 10 and 20 gallons per minute, respectively. This is quite low compared with rates of 100-160 gpm for other developed areas in the park. Water storage is available for 40,000 gallons, which is not enough to provide fire protection, and can be quickly drained by a leaking toilet. In addition, the water pressure from the existing tank behind the ranger station is quite low.

The electrical system currently consists of a 480 volt system delivering power to dry transformers on each building. These 480 volt lines are considered unsafe. Glacier Electric Cooperative frequently has trouble with the overhead power lines due to snow loads, trees falling on lines, or poles washing out. The existing overhead power line corridor requires technicians to hike back into the woods to locate problems and conduct repairs.

VISITOR EXPERIENCE

In recent years, visitation to Glacier National Park has ranged between 1.7 and 1.8 million. The highest recorded visitation of 2,204,131 was in 1983. The overall trend indicates increasing visitation. Based on traffic count and campground data, visitation to the Two Medicine area averaged about 60,000 people over the last five years. An average of approximately 10,000 people are passengers on boat tours or rent boats on Two Medicine Lake each year. Visitor activities in Two Medicine include camping, boating, hiking, backpacking and wildlife viewing. Retail and food items are offered at the General Store. The area is relatively isolated and not as heavily used as other visitor sites within the park.

The Two Medicine Subdistrict is used for hiking, fishing, boating, picnicking, camping (frontcountry and backcountry), horseback riding, mountain climbing, cross-country skiing, and snowshoeing. Two Medicine receives a high number of local day visitors. Running Eagle Falls area is culturally significant to the Blackfeet Nation. The Two Medicine area is managed to preserve its significant cultural and natural resources, wild character, and important wildlife habitat.

ENVIRONMENTAL CONSEQUENCES

METHODOLOGY

Potential impacts are described in terms of type (are the effects beneficial or adverse?), context (are the effects site-specific, local, or regional?), duration (are the effects short-term or long-term?), timing (is the project seasonally timed to avoid adverse effects?), and intensity (are the effects negligible, minor, moderate, or major?). Because definitions of intensity vary by impact topic, intensity definitions are provided in Table 4 for each impact topic analyzed in this EA.

In addition, National Park Service's Management Policies, 2001 require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, 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, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within the park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute impairment, but an impact would be more likely to constitute impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. A determination on impairment is made in the Environmental Consequences section for soils, historic structures, museum collections, and monument operations.

CUMULATIVE IMPACT

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), 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 Glacier National Park and, if applicable, the surrounding region.

- Burial of overhead electric line from park boundary to Highway 49 outside of the park and removal of power poles from existing corridor.
- Construction of Two Medicine fire cache and employee housing in 2003.
- Mechanical fuel reduction around the Two Medicine developed area.
- Commercial Services Plan- construction projects are proposed at Two Medicine may include upgrading the ticket booth for accessibility, removing some parking, remove and replace the comfort station, restore the General Store exterior and landscape, construct new accessible trails and walks including a bridge over Appistoki Creek to the campground, construct a service road and service parking area for the store, upgrade facilities to comply with life safety, accessibility and building codes, and maintain the present channel of Appistoki Creek to protect the developed area from flooding.
- Extension of operating dates as described in the Commercial Services Plan- the new operating dates could extend the visitor use season in Two Medicine up to four weeks- the season would change from 5/30-9/9 to third week of May through the end of September.
- NPS maintenance of the channel of Appistoki Creek to prevent flooding of the Two Medicine developed area.
- Rehabilitation of the Going- to- the- Sun Road, to begin in 2005.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

In this environmental assessment, impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses **are not** intended to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to historic properties (defined in the regulations as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. … The term includes properties of traditional religious and cultural importance to an Indian tribe …. that meet the National Register criteria.) were identified and evaluated by (1) determining the preliminary area of potential effects; (2) identifying cultural resources (historic properties) present in the area of potential effects that were either listed in or eligible for listing in the National Register of Historic Places; (3) applying the criteria of adverse effect to cultural resources within the area of potential effects; and (4) preliminary consultation with the SHPO and other consulting parties.

Under the Advisory Council's regulations a determination of the project's effect on cultural resources must be made for National Register-listed and eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g. diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect does not meet the criteria of adverse effect. CEQ regulations and the National Park Service's Conservation Planning, Environmental Impact Analysis and Decision-making

(Director's Order #12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

A Section 106 discussion is included in the impact analysis sections under the preferred alternative. This is not intended to meet the requirements of Section 106, but is a finding of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the currently available information. Section 106 review would be completed once project planning is sufficiently complete to identify exact areas of disturbance. Contract documents are required to ensure that determinations, findings, and/or agreements are sufficient for reviewing parties to understand their basis.

Table 3. Impact Thresholds.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Soils	Soils would not be affected or the effect would be below or at the lower end of detection. Any effects to soil productivity or fertility would be slight.	The effects to soils would be detectable. Effects to soil productivity or fertility would be small, as would the area affected	The effect to soils would be readily apparent. Effects would result in a change to soil character over a relatively wide area or multiple locations.	The effect on soils would be readily apparent and would substantially change the character of soils over a large area.	Short term—Effects last less than 3 years. Long term—Effects last more than 3 years.
Vegetation	Vegetation would not be affected or the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population.	Some individual native plants would be affected over a relatively small area, but the effects would be localized, and would be of little consequence to the species' population.	Individual native plants would be affected over a relatively wide area or multiple sites and would be readily noticeable. A sizeable segment of a species' population could be affected.	A considerable effect on native plant populations would occur over a relatively large area.	Short term—Effects last less than 3 years. Long term—Effects last more than 3 years.
Wildlife	Wildlife would not be affected or the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population.	Effects to individual wildlife are possible, although the effects would be localized, and would be of little consequence to the species' population.	Effects to individual wildlife are likely, and a sizeable segment of the species' local population could be affected.	Effects to wildlife would have substantial consequences to species populations in the region.	Short term—Effects extend only through the period of the project. Long term—Effects extend beyond the project period.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Threatened and Endangered Species and Species of Concern	No federally listed species would be affected or an individual of a listed species or its critical habitat would be affected, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms.	An individual(s) of a listed species or its critical habitat would be affected, but the change would be small. Minor effect would equate with a "may affect, not likely to adversely affect" determination for the species in U.S. Fish and Wildlife Service terms.	An individual or population of a listed species, or its critical habitat would be noticeably affected. Moderate effect would equate with a "may affect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely…" or "not likely to adversely affect" the species.	An individual or population of a listed species, or its critical habitat, would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a "may affect, likely to adversely affect" determination in U.S. Fish and Wildlife Service terms and would require formal consultation.	Short term—Effects extend only through the period of the project. Long term—Effects extend beyond the project period.
Water Quality	Water quality would not be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight and local.	Changes in water quality would be measurable, although the changes would be small and the effects would be localized.	Changes in water quality would be measurable but would be relatively local.	Changes in water quality would be readily measurable, would have substantial consequences, and would be noticed on a regional scale.	Short term—Effects last less than 1 year. Long term—Effects last more than 1 year.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Archeological Resources	Impact is at the lowest levels of detection — barely measurable with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of Section 106, the determination of effect would be no adverse effect.	Disturbance of a site(s) is confined to a small area with little, if any, loss of important information potential. For purposes of Section 106, the determination of effect would be no adverse effect.	Disturbance of the site(s) would not result in a substantial loss of important information. For purposes of Section 106, the determination of effect would be adverse effect.	Disturbance of the site(s) is substantial and results in the loss of most or all of the site and its potential to yield important information. For purposes of Section 106, the determination of effect would be adverse effect.	Short term—Effects extend only through the period of the project. Long term—Effects extend beyond the project period.
Historic Buildings and Structures	Impact(s) is at the lowest levels of detection - barely perceptible and not measurable. For purposes of Section 106, the finding of effect would be no adverse effect.	Impact would not affect the character defining features of a National Register of Historic Places eligible or listed resource. For purposes of Section 106, the finding of effect would be no adverse effect.	Impact would alter a character defining feature(s) of the structure, building or district, but would not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. For purposes of Section 106, the finding of effect would be no adverse effect.	Impact would alter a character defining feature(s) of the structure, building or district, diminishing the integrity of the resource to the extent that it is no longer eligible to be listed in the National Register. For purposes of Section 106, the finding of effect would be adverse effect.	Short term—Effects extend only through the period of the project. Long term—Effects extend beyond the project period.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Park Operations and Public Health and Safety	Park operations and public health and safety would not be affected, or the effects would not be noticeable.	The effect would be detectable, but would not have an appreciable effect on park operations or public health and safety.	The effects would be readily apparent, and would result in a substantial change in park operations or public health and safety in a manner noticeable to staff and the public.	The effects would be readily apparent, would result in a substantial change in park operation or public health and safety in a manner noticeable to staff and the public, and be markedly different from existing operations.	Short-term - Effects lasting for the duration of the project Long-term - Effects lasting longer than the duration of the project.
Visitor Experience	Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.	Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.	Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative.	Changes in visitor use and/or experience would be readily apparent and have important consequences. The visitor would be aware of the effects associated with the alternative.	Short-term - occurs only during the treatment action Long-term - occurs after the treatment action

SOILS

Impacts of the No Action Alternative

Impact Analysis

There would be no new ground disturbance under this alternative. There would continue to be erosion along Dry Fork whether **or** not power poles are present. Falling poles could increase erosion by a minor amount. There would continue to be negligible to minor underground impact to soils from the three small drainfields in the campground. There would be no change in existing impacts to soils if the proposed actions are not implemented. Impacts, if any, from the no-action alternative would be negligible to minor, site specific, short to long-term, and negative due to erosion around telephone poles and impacts from the existing drainfields.

Cumulative Effects

The negligible to minor impacts of this alternative combined with minor impacts resulting from construction of a fire cache and housing duplex, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would ultimately result in minor, site-specific, short-term to long-term adverse impacts on soils.

Conclusion

Impacts to soils, if any, from the no action alternative would be negligible to minor, site specific, short- to long-term, and adverse due to erosion around telephone poles and impacts from the existing drainfields. Cumulative impacts would also be minor as described above..

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis

The sewer line replacement would require roughly 5,000 feet of trenching following along the road corridor in previously disturbed soils. An additional 800' of trenching would be required to create spurs from the road to the comfort station septic tanks. Portions of the spurs could be new disturbance. The trenches are expected to be at least 36" deep and 36" wide. An effort would be made to not mix topsoil with sub-horizons when refilling trenches. Installation of a drainfield would disturb approximately 0.1 acre. The area would be excavated to install the chamber technology system. Installation of a lift station would disturb less than 500 square feet. This area would be excavated to install the concrete tank. The sewer installation would cause minor, long-term negative impacts on soils where they are to be trenched and excavated because the soil types are suitable for this kind of activity. The soil quality in areas that are revegetated would gradually improve over time. The old drainfield systems would be abandoned in place, resulting in a long-term negligible benefit to the natural soil conditions.

The electric line replacement would follow the same corridor as the sewer line with the addition of at least 1,300' of satellite lines, extending the overall area of impact by a minor amount. The majority of satellite lines would follow previously disturbed lines, but some would not. In order to shorten the total distance of trenching needed, more direct routes may be selected than were used for the existing lines. The addition of a phone line would not change the impacts to soil

beyond what has already been described.

The process of removing overhead power poles from the utility corridor would require movement of heavy equipment and result in soil compaction and disturbance along a corridor of more than 3 miles. Following removal the area would be allowed to recover naturally. Recovery time would depend on how severely the soils are compacted and whether they can be aerated before abandoning the area. There would no longer be soil disturbance from falling poles along Dry Creek. There would be minor, short-term negative impacts as a result, but the long-term impacts would be beneficial, as there would be no future anthropogenic soil disturbance along the corridor. Burying electric and phone cable along the road corridor for 4.4 miles would impact soils previously disturbed in establishing the road bed. This would result in an incremental increase to the minor, negative impacts to the soils along this stretch.

Installation of a radio tower and its associated equipment shed would have a long-term, negative impact on the 200 square feet inhabited by the tower and shed. There would be short-term negative impacts to the surrounding vicinity during construction. The overall impacts would be minor. Excavation of a well and installation of a new water tank would impact less than 0.1 acre of soils. The impacts would be minor, negative, and long-term.

Total ground disturbance is expected to be more than one acre, but less than 2.5 acres. The overall impacts to soils resulting from the combination of projects proposed in the preferred alternative would be site specific, minor, long-term adverse impacts.

Cumulative Effects

Overall impacts from the preferred alternative in conjunction with recent and potential projects including construction of the fire cache and housing duplex, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would result in affects on soils. However none of these soils are sensitive, rare or unique. The combined effects of the preferred alternative with recent and potential projects in the area would be site specific, minor, long-term and adverse.

Conclusion

The overall impacts to soils resulting from the combination of projects proposed in the preferred alternative would be site specific, minor, long-term adverse impacts. Overall impacts from the preferred alternative in conjunction with recent and potential projects would be site specific, minor, long-term and adverse.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

VEGETATION

Impacts of the No Action Alternative

Impact Analysis

There would be no new disturbance to vegetation if none of the proposals are to be implemented. The overhead powerline corridor would continue to have to be cleared

periodically to prevent trees from encroaching within the utility corridor. There would continue to be an elevated level of nutrients provided to vegetation over the existing comfort station drainfields, creating a somewhat unnatural nutrient balance in the immediate vicinity. Impacts from existing conditions would continue to be negligible to minor, site specific, long-term, and negative primarily due to continued vegetation clearing along the powerline corridor.

Cumulative Effects

The negligible to minor impacts from clearing vegetation along the powerline corridor in combination with impacts from construction of the fire cache and housing duplex, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would result in minor, site-specific short-term and long-term adverse impacts to vegetation. This alternative would make no other change to cumulative impacts.

Conclusion

Impacts to vegetation from existing conditions would continue to be negligible to minor, site specific, long-term, and adverse primarily due to continued vegetation clearing along the powerline corridor. Cumulative impacts would be minor, site-specific short and long term and adverse.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis

The majority of trenching for the sewer line would be along the road corridor, but disturbance could include the road shoulder where there would be some vegetation disturbance and removal. The spur road to the designated park storage yard is a narrow, dirt road, and there would be vegetation removal along this 1,500' stretch, mainly covered by regenerating black cottonwood at this time. Vegetated sections of the spur lines would also be disturbed. Installation of the drainfield and lift station would require removal of about 0.1 acre and less than 500 square feet of sparse vegetation respectively. All vegetated areas would be revegetated with native plants following the project. Nutrient levels in the vicinity of the drainfield would be elevated above normal conditions, resulting in a negligible impact to the plants growing there.

Native vegetation between the campground and the power pole would be disturbed for the electric line as would vegetated portions of spur lines to facilities. There is little vegetation through much of the off-road portion of the route between the Ranger Station and the General Store and through the residence area. Addition of phone line to the project would not require any additional vegetation disturbance beyond what will be disturbed for the electric line. These corridors would also be revegetated with native plants where vegetation currently exists.

If the overhead powerline from the park boundary to the campground is removed, there would be some vegetation disturbance during the process of removing the poles and cable. It is unlikely there would be funding for active vegetation restoration for this corridor. The area would likely be allowed to revegetate on its own with some monitoring for weed infestations and treatment when necessary. Short term impacts from pole removal would be minor, site specific, and negative, but the long-term impact would be positive, as the powerline corridor would be allowed to return to a forested area. Any road shoulder disturbance that would occur during

installation of electric and phone line from the boundary to the ranger station would be revegetated following the project.

Vegetation removal for installation of the radio tower, equipment shed, and water tanks would be permanent for the life of the structures. Vegetation disturbance in the vicinity during construction would be short-term, minor and negative. The existing radio tower would be removed and the site revegetated with native plant material, resulting in a minor, positive, long-term impact. Vegetation disturbance related to well installation would be short-term, minor, and negative.

The overall impacts of the actions for installing new utilities in the preferred alternative would be minor, site-specific, short-term adverse impacts. There would be a minor, site specific, long-term positive impact to more than 10 acres of utility corridor if the existing overhead powerline were removed, thus eliminating the need to clear the corridor of trees. Mitigation would include revegetating the utility corridors with native plants, monitoring the disturbed areas for weed infestations, and treatment according to guidelines in the park's Exotic Vegetation Management Plan.

Cumulative Effects

Overall impacts from the preferred alternative in conjunction with recent and potential projects including construction of the fire cache and housing duplex, mechanical fuel reduction in the developed area, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would permanently affect vegetation; however, none of the vegetation that would be affected is considered sensitive, and cumulative impacts would be site specific, minor, short-term and negative.

Conclusion

The overall impacts of the actions for installing new utilities in the preferred alternative would be minor, site-specific, short-term adverse impacts. There would be a minor, site specific, long-term beneficial impact to more than 10 acres of utility corridor if the existing overhead powerline were removed, thus eliminating the need to clear the corridor of trees. Mitigation would include revegetating utility corridors with native plants, monitoring disturbed areas for weed infestations, and treatment of noxious weeds. Overall cumulative impacts from the preferred alternative would be site specific, minor, long-term and adverse.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

WILDLIFE

Impacts of the No Action Alternative

Impact Analysis

With the no action alternative, no construction activities would occur, and no new facilities would be constructed at the periphery of the developed area, therefore no new impacts to wildlife would be expected.

Cumulative Effects
Because there would be no addition of new impacts or change in impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.

Conclusion
No construction activities would occur, and no new facilities would be constructed at the periphery of the developed area, therefore no new impacts to wildlife would be expected. Because there would be no addition of new impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis
All the proposed activities would involve the use of motorized construction equipment such as backhoes, dozers, or a Ditch Witch, and although the project area is within the developed visitor use zone, wildlife could be temporarily displaced by the noise and human presence, especially if it occurs during the spring or fall when normal visitor use is much diminished. Ground disturbance is within previously disturbed areas, and various species of both native and non-native vegetation has regenerated on those sites. Approximately one acre would be disturbed during the drainfield installation, and approximately 5,800 feet would be disturbed along the utility corridor in the developed area, all of which would be revegetated. A negligible amount of habitat would be lost under this alternative when the new drainfield, lift stations and radio tower are installed, and installation of the radio tower in the boneyard would increase the number of maintenance visits to that area, which could displace wildlife. Bighorn sheep have been seen using the boneyard area during spring and fall, attracted to wood ash from burn piles. The NPS would take steps to protect wildlife.

Addition of a structure requiring periodic maintenance in the boneyard area would have minor, long-term, site specific, adverse impacts to wildlife that use the area for foraging or traveling through the valley. As a result of the disturbed nature of the sites and adjacent development, long-term impacts from loss of habitat would be negligible to minor, site specific and adverse. Short-term impacts associated with construction would be localized and negligible if work occurs in summer. If construction is scheduled during spring or fall, short-term adverse impacts would be of moderate intensity (construction would not occur in winter at this site). Fall or spring construction would increase the likelihood of disturbance for bighorn sheep and other ungulates during sensitive periods, possibly affecting reproduction and survival. Impacts to ungulate populations would likewise impact carnivores that rely on these prey species (mountain lions, gray wolves, coyotes, grizzly bears, black bears, and wolverine).

Cumulative Effects
Past, concurrent, and foreseeable future actions that would likely increase the impact of this action would be the construction projects proposed in the Commercial Services Plan, and mechanical fuel reduction in and around Two Medicine, resulting in increased risk that wildlife would be temporarily displaced or habituated. Extending the operating dates earlier in spring and later in fall could also increase the impacts of the proposed actions by increasing both visitor use and construction activity during sensitive periods when those activities have historically

been limited. Cumulative effects are expected to be minor, short-term, site-specific, and adverse, but could become more severe if concurrent activities occur during sensitive spring and fall periods.

Conclusion

Relocation of the radio tower would have negligible to minor, long-term, site specific, adverse impacts on wildlife that use that corridor for traveling through the valley. As a result of the disturbed nature of the sites and adjacent development, long-term impacts of the proposed projects would be negligible to minor, site specific and adverse. Short-term impacts associated with construction would be localized and negligible if work occurs during visitor season of May 15 through November 1. If construction occurs outside these dates, short-term adverse impacts would be of moderate intensity (construction would not occur in winter at this site). Cumulative effects would be site specific, minor, short-term and adverse if construction occurs within the proposed dates.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN

Impacts of the No Action Alternative

Impact Analysis

With the no action alternative, no construction activities would occur, so no new impacts to threatened and endangered species or species of concern would be expected.

Cumulative Effects

Because there would be no addition of new impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.

Conclusion

No construction activities would occur, so no new impacts to threatened and endangered species or species of concern would be expected. Because there would be no addition of new impacts as a result of this alternative, there would be no cumulative impacts between this and any other project.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis

Since the nearest bald eagle nest is at Lower Two Medicine Lake, outside the project area, and

bald eagle foraging along the shore of Two Medicine Lake is not well documented but probably sporadic and mostly during spring and fall, impacts to bald eagles are expected to be negligible if most work is during the summer, or minor if work occurs during the spring or fall. No gray wolves have been documented using the project area recently, so no effects are anticipated. Canada lynx have been documented in the area, and it seems to provide travel and foraging habitat, possibly denning habitat. Denning in or near the developed area is unlikely due to existing human activity during summer and lack of sightings of family groups. There is evidence that lynx are fairly tolerant of human activities (Ruediger et. al. 2000), though the circumstances that determine tolerance or displacement, or the demographic affects on lynx, are not well understood. Therefore displacement impacts to lynx are expected to be negligible if work is during the summer, or minor if work occurs during the spring or fall. Under Section 7 of the Endangered Species Act, the NPS would formally consult with the USFWS on Canada lynx.

Grizzly bears are known to use the project area as a travel corridor and may use it for foraging during spring and fall, and therefore could be temporarily displaced or habituated by construction activities, and by maintenance visits to the proposed radio tower at the boneyard. If construction occurs during the normal visitor season, between May 15 and November 1, there would be negligible to minor, short- and long-term, site specific adverse impacts to grizzly bears. The proposed action may affect, but is not likely to adversely affect, grizzly bears under Section 7 of the Endangered Species Act. If work takes place before May 15 or after November 1, effects would be moderate, and a "may affect, likely to adversely affect" determination could be made.

Bighorn sheep are known to use the project area as a travel corridor, and could be temporarily displaced or disturbed by construction activities, and by maintenance visits to the proposed radio tower at the designated park storage yard. The NPS would take steps to protect wildlife. There could be negligible to minor, short- or long-term, site specific adverse impacts to bighorn sheep.

The long-term effects of the proposed action on all sensitive species of wildlife, including wolverine, willow flycatcher, fisher, northern goshawk, winter wren, pileated woodpecker, brown creeper, Clark's nutcracker, ruffed grouse, golden eagle, harlequin duck, common loon, Barrow's goldeneye, lazuli bunting, calliope hummingbird, American white pelican, horned grebe, veery, and red-eyed vireo would be negligible. Short-term impacts to species of concern from displacement and disturbance due to construction activities would be negligible in summer and moderate, localized, and adverse if construction were to occur in fall or spring.

Cumulative Effects

Past, concurrent, and foreseeable future actions that would likely increase the impact of this action would be the construction projects proposed in the Commercial Services Plan at Two Medicine or Rising Sun, rehabilitation of the Going-to-the-Sun Road, and mechanical fuel reduction in and around Two Medicine, resulting in increased risk that grizzly bears would be temporarily displaced or habituated. Extending the operating dates earlier in spring and later in fall could also increase the impacts of the proposed actions by increasing both visitor use and construction activity during sensitive periods when those activities have historically been limited. Cumulative effects are expected to be minor, short-term, site-specific, and adverse for grizzly bears, but could become more severe if concurrent activities occur during sensitive spring and fall periods (before May 15 or after November 1).

Conclusion

Impacts to bald eagles and Canada lynx would be negligible. There would be no effect to wolves. There could be negligible to minor, short- or long-term, site specific adverse impacts to grizzly bears and bighorn sheep. The proposed action may affect, but is not likely to adversely affect, grizzly bears as long as work occurs between May 15 and November 1. The long-term effects of the proposed action on all sensitive species of wildlife would be negligible if work occurs

between May 15 and November 1. Short-term impacts to species of concern from displacement and disturbance due to construction activities would be negligible during the proposed dates. Cumulative effects are expected to be minor, short-term, site-specific, and adverse for grizzly bears.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

WATER QUALITY

Impacts of the No Action Alternative

Impact Analysis

Under the no action alternative, the park would continue to use existing sewer lines, drainfields and the existing domestic water well. Currently, there are minor, localized, negative long-term impacts to water quality in Two Medicine as a result of existing facilities and channel maintenance. Over time, the no action alternative would result in moderate, localized, long-term adverse impacts on water quality due to sediment releases and potential sewage leaks caused by continued use of existing older sewer lines and drain fields.

Cumulative Effects

The continuation of minor impacts resulting from this alternative in combination with impacts resulting from construction of the fire cache and housing duplex, mechanical fuel reduction in the developed area, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would result in minor, localized, long-term adverse impacts.

Conclusion

The no action alternative would result in moderate, localized, long-term adverse impacts on water quality due to sediment releases and potential sewage leaks caused by continued use of existing older sewer lines and drain fields. Cumulative impacts of the no action alternative on water quality would be moderate, localized, long-term, and adverse.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis

Ground disturbance activities associated with the numerous proposed construction projects have the potential to produce sediment releases into Two Medicine Lake, Appistoki Creek, Dry Fork, and other drainages crossed by the Two Medicine entrance road. Impacts, if any, would be negligible to minor, short-term and localized. However, the installation of new sewage lines and consolidation to one new drainfield further from the lake would result in decreased

likelihood of line failure and decreased chance of effluent reaching the lake under any conditions. The new well would eliminate the chance of contamination from the system now in place. Because of the decreased risk of seepage from the septic system into neighboring water sources, the preferred alternative would result in moderate, localized, long-term beneficial impacts to water quality.

Cumulative Effects

New construction in the area has added to adverse impacts on water quality, but the activities proposed in the Draft Commercial Services Plan are replacing existing facilities which would not expand the footprint of the developed area, so no cumulative effects are anticipated from those actions. Mechanical fuel reduction and extending the operating season are also not expected to have any cumulative impacts.

The proposed actions would reduce the adverse impacts that the existing facilities are having on water quality. Cumulative impacts of the preferred alternative on water quality would be minor, localized, long-term, beneficial and adverse.

Conclusion

The preferred alternative would result in moderate, localized, long-term beneficial impacts to water quality. Cumulative impacts of the preferred alternative on water quality would be minor, localized, long-term, and adverse.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 BUILDINGS AND STRUCTURES

Impacts of the No Action Alternative

Impact Analysis

Two Medicine Dining Hall, Swanson Boathouse, and Two Medicine Ranger Cabin

Since there would be no action, there would be no direct impacts to historic buildings and structures. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review.

Cumulative Impacts

The no action alternative would not increase the impact of past, concurrent, and foreseeable future actions including those proposed in the Commercial Services Plan and planned mechanical fuel reduction in and around Two Medicine. There would be no new cumulative effects.

Conclusion

Since there would be no action, there would be no direct impacts to historic buildings and structures. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review. There would be no new cumulative effects.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Glacier 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 the Preferred Alternative

Impact Analysis

Two Medicine Dining Hall and Swanson Boathouse

Construction activities associated with excavation and installation of the wastewater treatment system would occur some distance from the Two Medicine Dining Hall and Swanson Boathouse. Construction activities associated with upgrading underground electric lines and installation of telephone lines would occur near the Two Medicine Dining Hall. There would be visual and audible effects during these activities. The relocated radio tower's 40-foot tall supporting base would not be visible from the Two Medicine Dining Hall (General Store) or Swanson Boathouse, but the two 21-feet 6-inch antenna would be within the potential area of visual effect from parts of the Dining Hall (Figures 3 and 4). The antennae, four-inches wide at their bases and tapering to one-and-one-half inches, would be located approximately 3,500 feet from the Dining Hall. The Dining Hall and Swanson Boathouse are not within the area of potential effect for the project to bury overhead power lines and construct new water well and storage portions of the preferred alternative.

The preferred alternative would have long-term, moderate, adverse impacts on the Two Medicine Dining Hall and short-term, minor adverse impacts on the Swanson Boathouse. For Section 106 purposes, the finding would likely be "no adverse effect."

Two Medicine Ranger Cabin

Construction activities associated with excavation and installation of the wastewater treatment system and upgrading underground electric lines and installation of telephone lines would occur near the Two Medicine Ranger Cabin. There would be visual and audible effects during these activities. The Two Medicine Ranger Cabin is not within the area of potential effect for the project to bury overhead power lines, relocate radio tower, and new water well and storage portions of the preferred alternative.

The preferred alternative would have short-term, minor adverse impacts on the Two Medicine Ranger Cabin. For Section 106 purposes, the finding would likely be "no adverse effect."

Cumulative Impacts

Past, concurrent, and foreseeable future actions that would likely increase the impact of this action would be the construction projects proposed in the Commercial Services Plan. Proposed rehabilitation of the Dining Hall (General Store) would address critical issues to maintain the historic building. The work would meet the Secretary of the Interior's "Standards for the Treatment of Historic Properties." The cumulative impact of this project combined with others in the area would be minor to moderate, positive and adverse, and long-term.

Conclusion

The preferred alternative would have long-term, minor, adverse impacts on the Two Medicine Dining Hall and the Swanson Boathouse. The preferred alternative would have short-term, minor adverse impacts on the Swanson Boathouse and the Two Medicine Ranger Cabin. For Section 106 purposes, the finding would likely be "no adverse effect."

ARCHEOLOGICAL RESOURCES

Impacts of the No Action Alternative

Impact Analysis
Since there would be no action, there would be no direct impacts to archeological resources. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review.

Cumulative Impacts
The no action alternative would not increase the impact of past, concurrent, and foreseeable future actions including those proposed in the Commercial Services Plan and planned mechanical fuel reduction in and around Two Medicine. There would be no new cumulative effects.

Conclusion
Since there would be no action, there would be no direct impacts to archeological resources. The No Action alternative does not meet the definition of an undertaking making it subject to Section 106 review. There would be no new cumulative effects.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Glacier 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 the Preferred Alternative

Impact Analysis
Previous archeological surveys show that there are archeological sites within or near the area of potential effect of the preferred alternative. None of the identified sites have been evaluated for listing in the National Register of Historic Places. The only site known to be within the area of potential effect has been recommended as not eligible for listing in the National Register. Additional identification efforts through field survey and consultation with the State Historic Preservation Office and Blackfeet Tribe (Note in 'Scoping" section above that the Confederated Salish and Kootenai Tribes have deferred to the Blackfeet Tribe's comments on this individual Environmental Assessment), would be conducted to meet the Secretary of the Interior's standards and guidelines for evaluation. In consultation with the SHPO and the Blackfeet Tribe, Glacier National Park would evaluate the site(s) for National Register eligibility. Construction monitoring for archaeological resources also would be performed on a schedule developed in consultation with the State Historic Preservation Office and the Blackfeet Tribe.

Based upon current archeological survey information, including location and recommended significance of identified sites, the preferred alternative would have minor impacts on archeological resources.

For Section 106 purposes, it is believed a finding of "no adverse effect" is likely.

Cumulative Impacts
Proposed site development in the Commercial Services Plan along the shoreline of the lake to the public boat dock combined with the proposed work for this project would have no additional effect on archeological resources because there are no identified archeological

resources that would be impacted by the Commercial Services Plan projects. Therefore no new cumulative effects are anticipated from those actions.

Conclusion

Based upon current archeological survey information, impacts from the preferred alternative on archeological resources would be minor.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Glacier 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.

PARK OPERATIONS AND PUBLIC HEALTH AND SAFETY

Impacts of the No Action Alternative

Impact Analysis

With the no action alternative, the wastewater treatment system would continue to be difficult to manage, and the drainfield closer to the lake would continue to be used, increasing the risk of contamination of surface and ground water. The electric lines would continue to deteriorate, and no new telephone lines would be installed; this could result in increased power outages and reduced telephone communications for the valley. Radio communications would continue to be limited, which may result in decreased response time to emergencies. The existing wells would still not provide adequate water to meet the needs of the users, and would fail to provide adequate storage for structural fire fighting. The no action alternative would result in minor to moderate, localized, long-term adverse impacts to park operations and public health and safety.

Cumulative Effects

Wastewater treatment, electrical and telephone service, radio communications, and efficient and adequate water availability will become even more important with the recent construction of the fire cache and employee duplex, and the proposed construction in the Commercial Services Plan, water availability become even more important. While the construction of the fire cache and housing duplex, mechanical fuel reduction in the developed area, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel all have positive effects on park operations and public health and safety, to do all of the above without upgrading wastewater treatment, electrical and telephone service, radio communications, and water capacity, could have moderate, localized, long-term adverse impacts on park operations and public health and safety.

Conclusion

The no action alternative would result in minor to moderate, localized, long-term adverse impacts to park operations and public health and safety. Cumulative effects of failing to upgrade utilities would have moderate, localized, long-term, adverse impacts on park operations and public health and safety.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 the Preferred Alternative

Impact Analysis
Installing a drainfield farther from the lake and improving the efficiency of the wastewater treatment system would improve public health by reducing the risk of contamination of area soils and water. The new wastewater treatment system would more effectively treat waste, because the drainfield would be located below the water table and the chance of spills would be reduced from manual pumping and the risk of operators coming in contact with raw sewage would be reduced, improving health and safety, compared to the older, complex system, therefore benefiting park operations. Upgrading the electric lines and installing additional phone lines would improve park operations and safety for visitors and employees by reducing the occurrence of power outages and increasing communications capabilities. Moving the radio tower would improve radio communications in the Two Medicine Valley, and would result in increased safety for visitors and employees as well as increased efficiency of park operations. The addition of a water well and water storage tanks would improve park operations and public health and safety by providing adequate water storage and pressure for structural fire fighting. The preferred alternative would have moderate, long-term, localized, beneficial impacts to public health and safety.

Cumulative Effects
Improvements to utilities in the Two Medicine developed area along with construction of the fire cache and housing duplex, mechanical fuel reduction in the developed area, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel would have minor, long-term beneficial impacts on park operations due to increased efficiency of utilities and communications.

Conclusion
The preferred alternative would have moderate, long-term, localized, beneficial impacts to public health and safety. Cumulative effects would be minor, long-term and beneficial to park operations, and minor, long-term localized and adverse to public health and safety.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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 EXPERIENCE

Impacts of the No Action Alternative

Impact Analysis
With the no action alternative, sewer lines and electric lines would not be replaced, and no new telephone lines would be installed. The radio communications would not be improved, and no additional water and water storage would be provided. There would continue to be negligible to minor long-term, localized adverse impacts on the visitor's experience due to electric power

outages, limited water availability, and limited ability to communicate via telephone outside the valley.

Cumulative Effects

Combined with the construction of the fire cache and employee duplex, mechanical fuel reduction in the developed area, upgrading the ticket booth, relocating the comfort station at the parking lot, restoring landscaping, adding accessible trails, constructing a service road, and maintaining the Appistoki Creek channel, the no action alternative, which would not upgrade utilities in Two Medicine, would have negligible to minor, long-term localized, adverse impacts on visitor experience.

Conclusion

There would continue to be negligible to minor, long-term, localized adverse impacts on the visitor's experience due to electric power outages, limited water availability, and limited ability to communicate via telephone outside the valley. Combined with past and future construction, the no action alternative would continue to have negligible to minor, long-term localized adverse impacts on visitor experience.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

Figure 3. Visibility of 40 foot radio tower.

Figures 3 and 4 were created using computer modeling to predict locations from where the tower would be visible if it were installed at the preferred location near the designated park storage yard . This was done to assess impacts of the tower on cultural resources and visitor experience. The wider tower is expected to be more visible than the narrow antenna, hence the separate models: one (Figure 3) for the 40 foot tower, which is wider, and one (Figure 4) for the tower plus 20 foot antenna (total height 60 feet). Areas in green/grey are those areas from which the tower would not be visible.

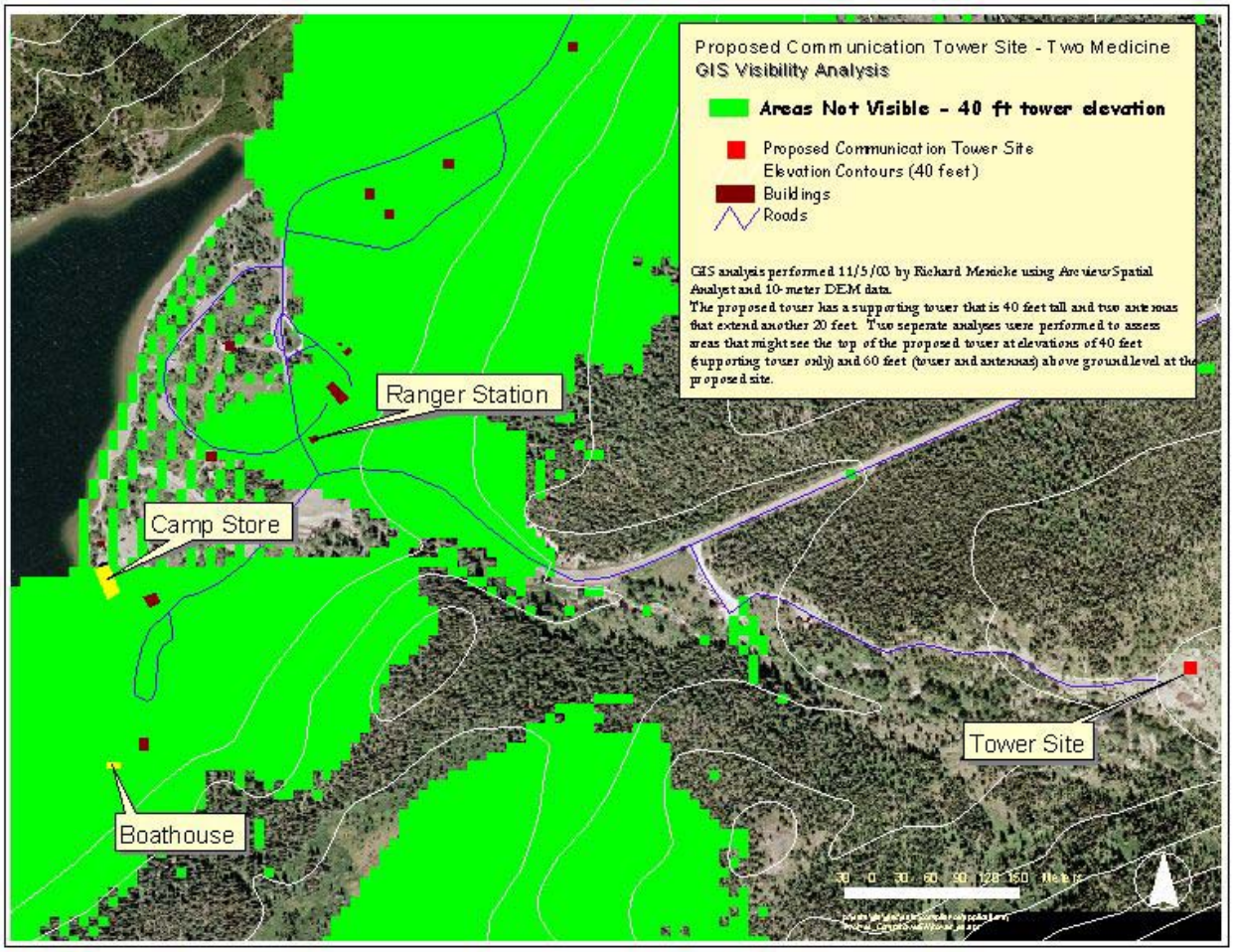
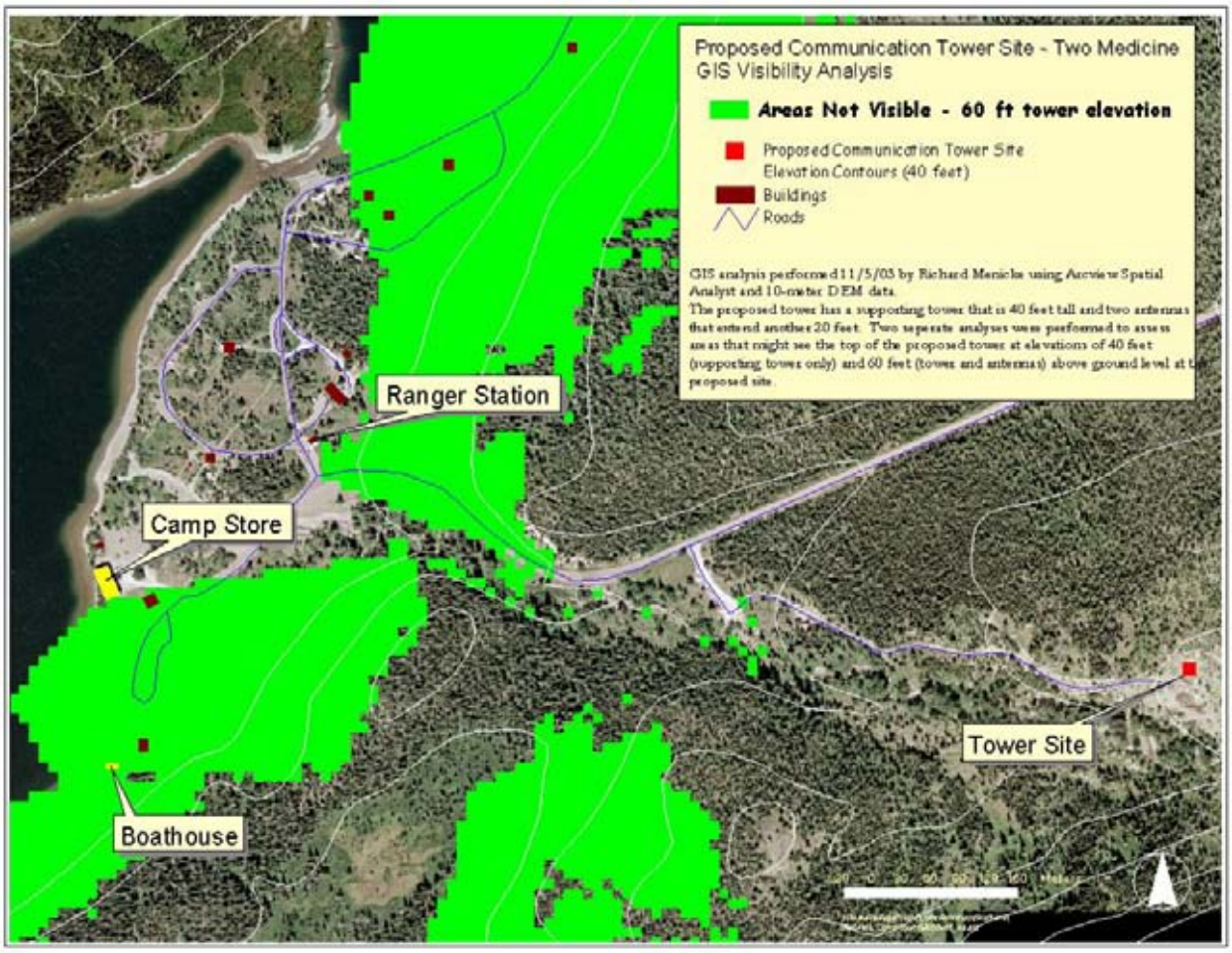


Figure 4. Visibility of 60 foot tall radio tower plus antenna.

This figure was created using computer modeling to predict locations from where the new radio tower would be visible. This was done to assess impacts of the tower on cultural resources and visitor experience. The wider tower is expected to be more visible than the narrow antenna, hence the separate models: one (Figure 3) for the 40 foot tower, which is wider, and one (Figure 4) for the tower plus 20 foot antenna (total height 60 feet). Areas in green/grey are those areas from which the tower and antenna would not be visible.



Impacts of the Preferred Alternative

Impact Analysis

Trenching for the sewer and electric lines would block access to some areas of the campground, and would require progressive closures throughout the project. Visitors would be limited to those campsites unaffected by utility line work at a given time. Visitors would likely experience some short delays while driving the roads during utility line installation (sewer, electric and phone lines). Installation of the new radio tower would not affect visitor experience in the short term, but if the tower were visible from the developed area, visual impacts to the visitor experience could be negligible to minor, site-specific, long-term and adverse. Installation of a new well and water storage tanks would not affect visitors directly, but in the long term adequate water would be available in the campground, which would have a negligible to minor beneficial effect to the visitor experience. Overall impacts to visitor experience from the proposed projects would be minor-moderate, site-specific, short-and long-term and adverse due to temporary campground and road closures or delays, and potential visibility of the radio tower from some locations. There would also be beneficial long-term impacts due to increased availability of water.

Cumulative Effects

Combined with past and future construction projects, the proposed construction activities would have minor to moderate, short-term, localized adverse impacts to visitor experience. The park would plan road and campground area closures to minimize impacts to visitor experiences.

Conclusion

Overall impacts to visitor experience from the proposed projects would be negligible to minor, site-specific, short -term and adverse due to temporary campground and road closures or delays, and long-term due to potential visibility of the radio tower from some locations. There would also be beneficial long-term impacts due to increased availability of water. Combined with past and future construction projects, the proposed construction activities would have minor to moderate, short-term, localized adverse impacts to visitor experience.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation and proclamation of Glacier 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.

COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

The NPS will comply with all applicable federal and state regulations when implementing the proposed actions to improve utilities in the Two Medicine area. Permitting and regulatory requirements for this project are expected to include:

National Environmental Policy Act (NEPA) and regulations of the Council on Environmental Quality – The National Environmental Policy Act applies to major federal actions that may significantly affect the quality of the human environment. This Environmental Assessment meets the requirements of the NEPA and regulations of the Council on Environmental Quality in evaluating the potential effects associated with the proposed action on federal lands. If the proposed action would have significant environmental effects, then a notice of intent to prepare an Environmental Impact Statement would be issued. If after reviewing public comment and this Environmental Assessment no significant impacts are identified, a finding of no significant impact would be prepared.

Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) – Informal consultation was initiated with the US Fish and Wildlife Service on September 25, 2003. A Biological Assessment will be submitted along with the Environmental Assessment for their review and concurrence. The NPS has concluded that the preferred alternatives would have no effect on bald eagles, Canada lynx and wolves. It may affect, but is not likely to adversely affect, grizzly bears as long as work occurs between May 15 and November 1.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et. Seq.) – Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR Part 800, require federal agencies to identify and evaluate historic properties eligible for listing in the National Register of Historic Places and to assess the effects of undertakings on eligible properties. The regulations permit federal agencies to coordinate Section 106 compliance with the National Environmental Policy Act. The development of this EA meets some of the consultation requirements of Section 106, but does not meet the documentation standards required to support a finding of effect(s). This documentation will not be available until specific project construction documents are prepared. Glacier National Park staff met with the State Historic Preservation Office, the Confederated Salish and Kootenai Tribal Preservation Department, and the Blackfeet Tribal Business Council Cultural Liaison staff during the development of this EA.

Section 106 review would be completed once project planning is sufficiently complete to identify areas of potential effect.

Section 404 of the Clean Water Act-A section 404 permit would be required and applied for from the Department of the Army, Corps of Engineers.

Montana State Permits- A 124 Permit would be required and applied for from Montana Fish, Wildlife and Parks and a 318 Turbidity Authorization permit would be required and applied for from Montana Department of Environmental Quality. A National Pollution Elimination Discharge Permit would also be applied for.

CONSULTATION/COORDINATION

AGENCIES/ TRIBES/ ORGANIZATIONS/ INDIVIDUALS

Federal

Advisory Council on Historic Preservation
Conrad Burns, United States Senate (Washington, D.C., Great Falls, Kalispell, Missoula Offices)
Dennis Rehberg, United States House of Representatives (Washington, D.C., Kalispell, Missoula Offices)
Flathead National Forest
Max Baucus, United States Senate (Washington, D.C., Kalispell, Billings Offices)
Steve Martin, National Park Service Intermountain Regional Director, Denver
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency (Washington, D.C., Denver, Helena Offices)
U.S. Fish and Wildlife Service (Helena and Kalispell)
U.S. Geological Survey, Biological Resources Division
U.S. Department of the Interior, Office of the Solicitor (Washington, D.C., Billings Offices)
Waterton Lakes National Park

State

Environmental Quality Council, Director, Helena
Governor of Montana: Judy Martz
Montana Department of Environmental Quality Permitting & Compliance, Helena
Montana Department of Environmental Quality, Board of Environmental Review
Montana Department of Environmental Quality, Water Protection Bureau
Montana Department of Environmental Quality, Air Quality Division
Montana Department of Natural Resources and Conservation
Montana Fish, Wildlife, and Parks, Region One Supervisor, Kalispell
Montana State Clearinghouse
Montana State Historic Preservation Office
Flathead Basin Commission

American Indian Tribes

Blackfeet Tribal Business Council, Cultural Liaison
Chairman and Members, Blackfeet Tribal Business Council
Chairman and Members, Confederated Salish and Kootenai Tribal Council
Confederated Salish and Kootenai Tribal Preservation Department

County and City

Chair, Flathead County Board of Commissioners
Flathead County Planning Board
Glacier County Commissioners
Glacier County Public Health Department
Glacier Electric Cooperative
Mayor of Browning Montana
Mayors and City Councils of Kalispell, Columbia Falls and Whitefish
Public Libraries: Kalispell, Whitefish, Columbia Falls, Helena, Butte, Browning, Bozeman, Great Falls, Missoula, Bigfork, and Lethbridge, Alberta, Canada

Organizations

Flathead Regional Development Office
Friends of the Wild Swan
Glacier Fund
Glacier Natural History Association
Glacier Park Boat Company
Glacier Park Inc.
Glacier Waterton National Park Visitor Association
Great Northern Whitewater Resort
Montana Preservation Alliance
Montana Wilderness Association
National Parks Conservation Association
Wild River Adventures
Wilderness Watch

Individuals

A complete list of individuals who received the document is available upon request.

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