

CHAPTER 2: ALTERNATIVES CONSIDERED

This chapter discusses four alternatives for providing various levels of wireless communications services and wireless communication facilities (WCFs) or infrastructure in Yellowstone National Park. The alternatives discuss present proposed actions, and address potential future actions that have not yet been proposed. A section that describes elements common to all action alternatives follows the descriptions of the alternatives. Guidelines and criteria used for the evaluation of potential future wireless communications projects are provided to reduce any resource impacts. Future actions may be implemented with the approval of the superintendent if they (1) meet the guidelines and criteria of this plan, (2) are recommended by the park's Telecommunications Committee, and (3) have negligible, minor, or moderate impacts as defined in this plan.

Alternative A, the *No Action Alternative* (required by NEPA), in this WCS Plan/EA would continue the current practice of reviewing and deciding individually on applications for WCFs, NPS radio upgrades, resource monitoring equipment, and wireless Internet services (WiFi) on a case-by-case basis, with no comprehensive guidance as to where such services should be provided and no criteria for siting associated equipment. This No Action alternative assumes that the NPS would not make major changes to current management. The 2004 park-imposed moratorium on new antennas would no longer be in effect, as this was a measure the park used until such time as this WCS Plan was complete.

The three action alternatives provide for various levels of service and infrastructure within the park based on input received during internal and public scoping sessions and from subsequent analysis and evaluation. Alternative B, *Reduction in Wireless Services*, would allow only the most basic of wireless communications services within the park. The NPS two-way radio system would remain essentially unchanged, but most cell phone service would be eliminated and wireless infrastructure would be removed, as would many weather monitoring sites. No new wireless Internet service would be allowed. Alternative C, *Limited Increase in Wireless Services* (preferred alternative), would allow cellular service at the Lake developed area, improve cellular service at the Tower-Roosevelt and Canyon development areas, relocate cellular infrastructure from Bunsen Peak to Elk Plaza for cell coverage at the Mammoth development area, and relocate the Old Faithful cell tower to reduce the existing visual impact of the tower. This alternative would address potential health hazard issues at Mount Washburn lookout, would implement additional volcanic observation equipment, and would allow for wireless Internet service in lodging guest rooms, lobbies, and park stores. Alternative D, *Substantial Increase in Wireless Services*, would allow cellular service at the Lake developed area; at the Madison, Norris, Bridge Bay, Tower-Roosevelt, and Fishing Bridge campgrounds; along the Grand Loop Road; and along the five park entrance roads. This alternative would maintain the existing Old Faithful cell tower and its appearance would be camouflaged. The construction of a facility on Bunsen Peak would allow for increased capacity for data transmission (bandwidth) into the park.

Each alternative is described in detail on the next few pages. Table 1 summarizes the impacts of Alternatives A, B, C, and D. Table 2 compares the components of each alternative, and includes a statement of the ability of these alternatives to meet the project objectives identified in Chapter One. Alternative C and D meet each of the objectives identified for this project, while Alternative A and B do not address all of the objectives. Tables 1 and 2 describe each alternative in detail and summarize environmental impacts for each alternative.

The following maps, shown for each alternative, illustrate general locations as well as existing and proposed coverage areas of each alternative. The actual coverage areas may vary from what is depicted on the maps since proposed systems have not yet been designed.

Impact Topic	Alternative A No Action	Alternative B Reduction in Services	Alternative C Preferred Alternative	Alternative D Increase in Services
Natural Resources				
Threatened and Endangered Species	May affect, not likely to adversely affect Canada lynx or gray wolves	May affect, not likely to adversely affect Canada lynx or gray wolves	May affect, not likely to adversely affect Canada lynx or gray wolves	May affect, not likely to adversely affect Canada lynx or gray wolves
Migratory Birds and Birds of Special Management Concern	Long-term, minor to moderate, adverse impacts	Long-term negligible to minor adverse impacts	Short- and Long-term, negligible to minor, adverse impacts	Long-term, minor to moderate, adverse impacts
Wilderness	Long-term minor adverse impacts	Negligible to minor, beneficial impacts	Negligible to minor, adverse impacts	Minor to moderate, adverse impacts
Soundscapes	Short- and long-term, minor to moderate, adverse impacts	Long-term, minor and beneficial impacts	Short- and long-term, minor, and adverse impacts	Short- and long-term minor to moderate, and adverse impacts
Cultural Resources				
Historic Properties and Cultural Landscapes	Long-term, minor, adverse impacts (no adverse effect § 106 of NHPA)	Long-term, moderate, beneficial impacts (no adverse effect § 106 of NHPA)	Long-term, minor, adverse impacts (no adverse effect § 106 of NHPA)	Long-term, moderate, adverse impacts (adverse effect § 106 of NHPA)
Social Resources				
Health and Human Safety	Long-term, minor, beneficial impacts	Long-term, minor, adverse impacts	Long-term, minor, beneficial impacts	Long-term, moderate, beneficial impacts
Park Operations	Long-term, minor, adverse impacts	Long-term, minor, adverse impacts	Long-term, minor adverse impacts	Long-term, negligible to minor, beneficial impacts
Visitor Use and Experience	Long-term, minor to moderate, adverse and beneficial impacts	Long-term, minor to moderate, adverse and beneficial impacts	Long-term, minor to moderate, adverse and beneficial impacts	Long-term, minor to moderate, adverse and beneficial impacts
Visual quality	Long-term, moderate, adverse impacts	Long-term minor beneficial impacts	Long-term minor and beneficial impacts	Long-term, moderate and adverse impacts

Table 1 – Environmental Impact Summary by Alternative

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

Table 2 - Alternatives Comparison Table				
	NPS Radio	Cell phone Service	Resource Monitoring Stations	Wireless Internet
Alternative A (No Action) Address wireless needs or proposals on a case-by-case basis. Remove Moratorium. Does not meet all project objectives, does not guide the placement of new facilities.	<ul style="list-style-type: none">Upgrade and install new equipment and functions as needed according to park needs, changing technology, and federal mandates on a case-by-case basis.	<ul style="list-style-type: none">Proposals for new cell phone coverage would be evaluated on a case-by-case basis. Replacement or upgrade of wireless equipment would occur as needed. No comprehensive plan would guide efforts.	<ul style="list-style-type: none">Proposals evaluated on a case-by-case basis.Wireless webcams for resource and public safety purposes would be approved on a case-by-case basis.	<ul style="list-style-type: none">Existing WiFi installations (some dormitories, Mammoth clinic, and YA offices) allowed; Additional WiFi evaluated on a case-by-case basis.Wireless webcams for visitor use would be installed within developed areas.
Alternative B (Reduce wireless services and infrastructure within the park) Provide for basic life/health/safety wireless services (NPS radio, commercial phone and data services, cell service at Gardiner-Mammoth only). Does not meet all project objectives, does not improve operational efficiency and safety.	<ul style="list-style-type: none">Upgrade and install new equipment to existing sites as needed according to changing needs, technology, and federal mandates. There would be no increase in repeater sites.	<ul style="list-style-type: none">Cell phone facilities would be removed at Old Faithful, Grant Village, Canyon and Tower-Roosevelt areas, and service would no longer be available. Cell phone service remains in Gardiner-Mammoth area. Relocate cell phone antennas from Bunsen Peak to Elk Plaza.Remove all equipment and power transmission line to summit of Bunsen Peak (with the exception of the Qwest passive reflector). Remove Old Faithful, Grant, and Mt. Washburn cell towers and related equipment. Existing FM radio stations rebroadcast from Bunsen Peak would be removed. The translator equipment would be relocated to Elk Plaza and two new stations would be rebroadcast.The footprint of the existing facility at Elk Plaza would experience some possible increase in height of the tower, and expansion of existing fenced equipment area to accommodate new equipment shed or construction.Address safety at Mt. Washburn by relocating antennas and microwave dishes from exterior of the historic fire lookout onto a newly constructed support structure.No cell phone infrastructure would be allowed in recommended wilderness, minor developed areas, or along park roads	<ul style="list-style-type: none">No increase in volcano monitoring equipment; provide for upgrade of existing equipment.Remove stream gauging stations not needed for water quality or geothermal monitoring.No increase in RAWs; upgrade existing Bechler RAWs and replace permanent guy wires with platform and tripod.Establish criteria for providing new monitoring equipment based on life-health-safety needs (no webcams).	<ul style="list-style-type: none">Existing WiFi installations allowed;. No additional WiFi would be approved.No new wireless webcams would be installed.
Alternative C Preferred Alternative (Provide for limited increase in wireless services so that all major developed areas of the park have services) Provide cell service at Lake; improve cell service at Canyon and Tower-Roosevelt. Increase WiFi to include visitors. Meets all project objectives.	<ul style="list-style-type: none">Upgrade and install new equipment and functions as needed according to park needs, changing technology, and federal mandates and siting criteria. The proposed Telecommunications Committee and guidelines would be used for evaluating any new repeater sites.	<ul style="list-style-type: none">Limit new cell coverage to Lake developed area.Relocate Old Faithful cell tower to a site near the water treatment plant when feasible.Improve cell coverage at Canyon and Tower-Roosevelt with equipment upgrades at Mt. Washburn.Address safety at Mt. Washburn by relocating antennas and microwave dishes from exterior of the historic fire lookout onto a newly constructed support structure. Equipment would remain in the existing space under the observation deck.Remove obsolete equipment and relocate cellular antenna from Bunsen Peak to Elk Plaza. Allow new infrastructure on Bunsen Peak to provide for an increase in capacity of the data transmission (backbone) system within the park. Power line to top of Bunsen Peak would remain in service to provide power for this potential use. Maintain landline/data system passive reflector, FM radio translation equipment, and replace equipment shed with smaller equipment cabinet-sized enclosure.No cell phone infrastructure would be allowed in recommended wilderness, minor developed areas, or along park roads	<ul style="list-style-type: none">Implement proposed YVO monitoring plan (with the exception of the gauging station at Bechler and the upper Yellowstone River not being implemented), adding three stream gaging sites.Add new RAWs near NE entrance. Upgrade existing Bechler RAWs and replace permanent guy wires with platform and tripod. Replace existing manual weather stations with RAWs over time.Establish criteria/guidelines for installing new monitoring equipment (e.g., Webcams on fire structures only, NEON).Provide for temporary volcanic gas monitoring stations.	<ul style="list-style-type: none">WiFi available in lodging guest rooms, park stores, and hotel lobbies.WiFi available for administrative use by NPS, concessioners and partner organizations.Residential WiFi available by subscription in areas where cell coverage is available.No wireless webcams would be installed in backcountry areas for public use. Wireless webcams could be approved on a case-by-case basis within developed areas for public use, telecom needs.
Alternative D (Provide substantial increase to wireless services to major and minor developed areas and park roads) Provide cell service on Grand Loop and entrance roads, major and minor developed areas. Increase WiFi coverage. Provide cell service in major campgrounds. Meets all project objectives.	<ul style="list-style-type: none">Upgrade and install new equipment and functions as needed according to park needs, changing technology, and federal mandates. New repeaters would be located to address current gaps in radio coverage.	<ul style="list-style-type: none">Limit new cell coverage to Lake developed area.Camouflage Old Faithful cell tower to reduce visibility from historic district.Improve cell coverage at Canyon and Tower-Roosevelt with equipment upgrades at Mt. Washburn.Allow seasonal cell coverage at Madison, Norris, Bridge Bay, and Fishing Bridge campgrounds through construction of new facilities. An additional tower may be needed to provide for cell coverage at the Bridge Bay Campground.Allow cell coverage along major roads using antennas on existing power line poles and/or additional cell towers.Address safety at Mt. Washburn by relocating antennas and microwave dishes from exterior of the historic fire lookout onto a newly constructed support structure with associated new equipment building and security fence.Remove obsolete equipment and relocate cellular antenna from Bunsen Peak to Elk Plaza. Allow new infrastructure on Bunsen Peak to provide for an increase in capacity of the data transmission (backbone) system within the park. Power line to top of Bunsen Peak would remain in service to provide power for this potential use. Maintain landline/data system passive reflector, FM radio translation equipment, and replace equipment shed with smaller equipment cabinet-sized enclosure.No cell phone infrastructure would be allowed in recommended wilderness.	<ul style="list-style-type: none">Install equipment proposed in YVO monitoring plan and additional monitoring sites. Upgrade monitoring equipment to meet National Volcano Early Warning System standards.Upgrade existing Bechler RAWs and replace permanent guy wires with platform and tripod. Replace existing manual weather stations with RAWs over time. Add new RAWs near NE entrance.Establish criteria/guidelines for installing new monitoring equipment (e.g., webcams on fire structures only, NEON).Provide for temporary volcanic gas monitoring stations.	<ul style="list-style-type: none">WiFi available in lodging guest rooms, park stores, and hotel lobbies.WiFi available for administrative use by NPS, concessioners and partner organizations.WiFi available for use by general public in most areas of development (either free or through resale by vendor or concessioner).WiFi available in campgrounds with more than 100 sites.Residential WiFi available by subscription in areas where cell coverage is available.Wireless webcams, as above, Alt. C.

Common to all action alternatives: Upgrade power to summit of Mt. Washburn. Reduce radio frequency exposure in visitor and employee areas at Mt. Washburn. Current passive reflectors and microwave dishes remain to support commercial phone and data system. Use best available technology, remove outdated and unused infrastructure. Use siting criteria for any new installations.

Alternative A: No Action

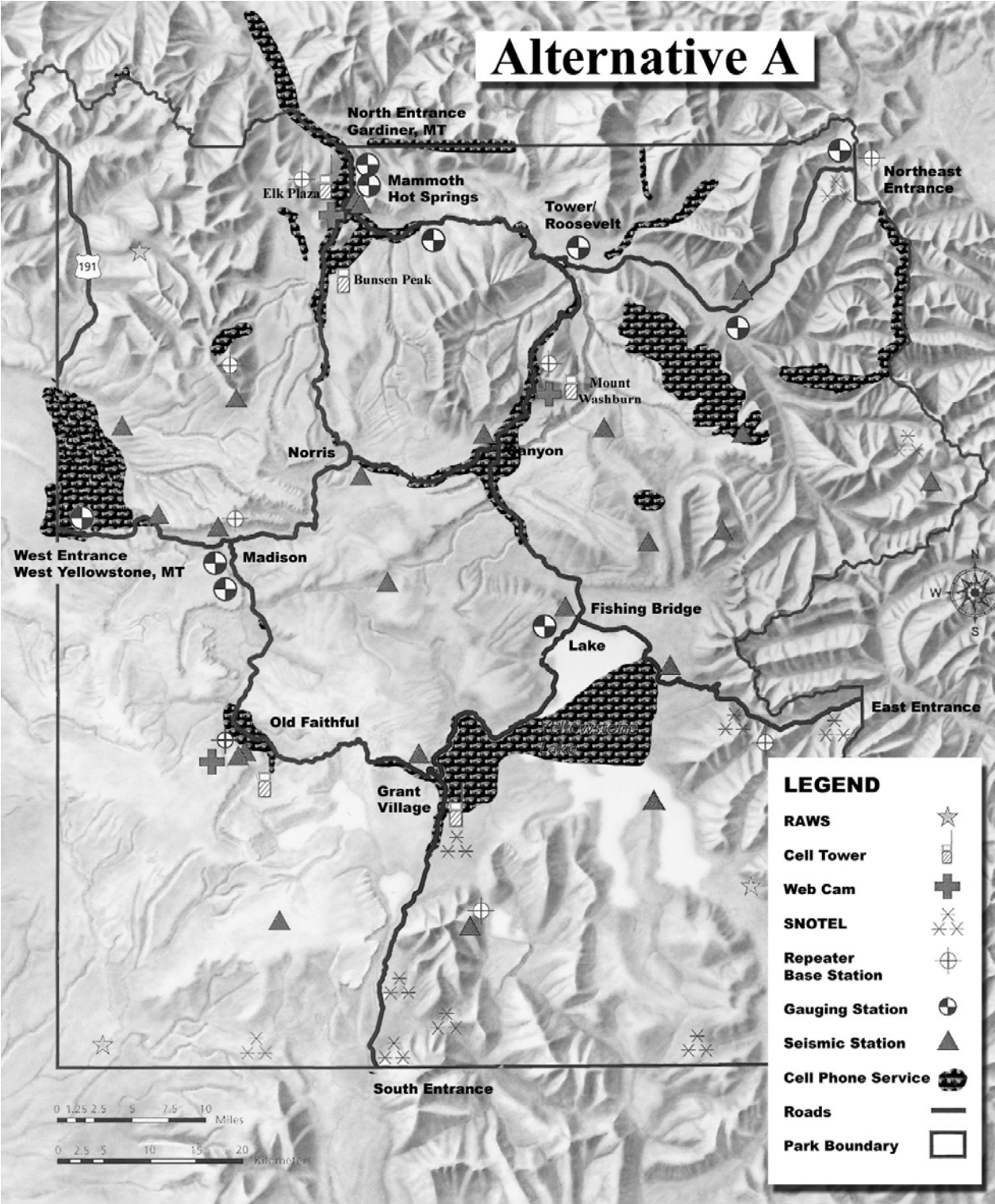


Figure 2 - Alternative A

Existing cell phone coverage is shown

Under Alternative A, *No Action*, the NPS would not develop comprehensive park guidelines and plan for installation of wireless cellular services, coverage and related WCF infrastructure. Yellowstone National Park staff would evaluate project proposals for wireless services on a case-by-case basis and would develop recommendations regarding each application for a decision by the superintendent. Applications related to the following three issues would receive the highest consideration: 1) emergency actions relating to telecommunications issues; 2) placement of temporary (two years or less) facilities not related to emergency actions that would improve the efficiency of NPS, concessioner, or contractor operations and have no greater than minor adverse impacts to park resources, or would have no increase in impacts to visitor and park staff safety; and 3) replacement or upgrading of existing telecommunications infrastructure that would not require new facilities to be constructed and would not have greater than negligible adverse impacts to any park resource. The current moratorium on wireless services and infrastructure would be removed.

NPS Radio

The health and safety of area visitors, employees, and residents depends on reliable two-way communications. However, with the existing system, two-way communications in areas within Yellowstone National Park are subject to "blind" spots, and are therefore unreliable. The use of current ground-based antennas with Yellowstone's varying topography will not eliminate these blind spots without the addition of an unacceptable number of towers or towers of excessive height. New WCF's might be added to enhance NPS radio coverage or meet changing technology or federal mandates, and park needs. Any new proposals to install additional wireless radio equipment would be reviewed on a case-by-case basis by park staff, and would adhere to NPS Director's Order 53 (DO-53) (*Special Park Uses*), frequency coordination, and permitting by the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA).

Cell phone

The five current cellular sites in the park (located on a ridge above the Old Faithful development, within a service area approximately one mile from Grant Village, on the fire lookout atop Mt. Washburn, atop Bunsen Peak approximately three miles south of Mammoth Hot Springs, and on Elk Plaza just northeast of Mammoth Hot Springs) would remain. These sites are all located in areas of previous disturbance, and none are located within recommended wilderness. This alternative would allow for some expansion of service areas evaluated on a case-by-case basis, though no plan would guide the actions.

Resource Monitoring

Any new research permit application that proposes to install wireless communications facility would be reviewed by the Research Permit Committee. This committee is led by the research permit coordinator with members that represent Resource and Visitor Protection, Interpretation, Maintenance, Compliance, Natural Resources, and Cultural Resources programs. The committee would review permits for purpose and need; scientific merit; impacts to public health and safety, scenic values, natural or cultural resources, visitor use activities, and resource compliance needs (e.g., National Environmental Policy Act [NEPA], National Historic Preservation Act [NHPA], Endangered Species Act [ESA], and Clean Water Act). Yellowstone currently issues more than 200 research permits annually; about 40 new permits are reviewed by the Research Permit Committee each year (less than five permits annually seek to install wireless equipment). The committee makes a recommendation to the chief of the Yellowstone Center for Resources on whether a permit should be approved.

If a proposed research project might have impacts greater than or minor, then the permit application would additionally be reviewed by the park's Resource Compliance Team. This committee is led by

the compliance coordinator and made up of staff representing all park divisions: Maintenance, Resource and Visitor Protection, Interpretation, Yellowstone Center for Resources, Concessions, and Administration. This committee would review the impacts of the proposal to determine whether or not this EA has assessed the impacts of the proposal, and whether additional NEPA or NHPA compliance should be completed prior to implementation of a project. They would make recommendations regarding the level of resource compliance necessary to the park's Management Team, which is comprised of the superintendent, deputy superintendents, division chiefs, safety officer, public affairs officer, budget analyst, and management assistant. The Management Team decides which projects would be approved and the level of necessary compliance.

If a research project is proposed within Yellowstone's recommended wilderness, a Minimum Requirement Analysis application would be completed and the permit application would be reviewed by the park's Wilderness Committee. This committee is led by the park's wilderness coordinator and made up of the trail crew supervisor and a representative from the Yellowstone Center for Resources. This committee reviews proposed projects for adherence to the Wilderness Act and NPS Policies on wilderness management. The committee reviews the Minimum Requirement Analyses completed for projects proposing the use of mechanized equipment or installation of equipment in recommended wilderness makes a recommendation to the chief ranger on which projects to approve, and documents the outcome of each project it reviews.

Wireless Internet (WiFi)

Wireless Internet service would be allowed in those areas and buildings that currently have it installed. These include 19 employee dormitories located at all major developed areas of the park except at Tower-Roosevelt; the Yellowstone Park School; and the Mammoth Clinic. Additional WiFi services requests within the park would be evaluated and approved on a case-by-case basis. Access to these systems would continue for dorm residents and park administrative and work functions related to the buildings served.

Electrical Power at Mt. Washburn

The power line to the summit of Mt. Washburn would not be upgraded, thus electric power would continue to be the primary limiting factor to equipment upgrades or additions on Mt. Washburn. The space requirements for electrical equipment would continue to be cramped and less than adequate.

FM Radio Stations

The Gardiner/Mammoth FM Association would continue to provide rebroadcast of currently available FM stations (KMTN (Jackson, WY), KEMC (Billings, MT), KXLB (Bozeman, MT), and KMMS (Bozeman, MT). Two stations are currently rebroadcast from Elk Plaza, and two from Bunsen Peak. A fifth frequency that is available to the association and not currently used would be retained for use as needed. Equipment would continue to be located in the equipment shed on Bunsen Peak, and in the equipment building at Elk Plaza. Antennas for both receive and transmit for each station would be retained. Additional request would be considered on a case-by case basis.

Alternative B: Reduction in Wireless Services

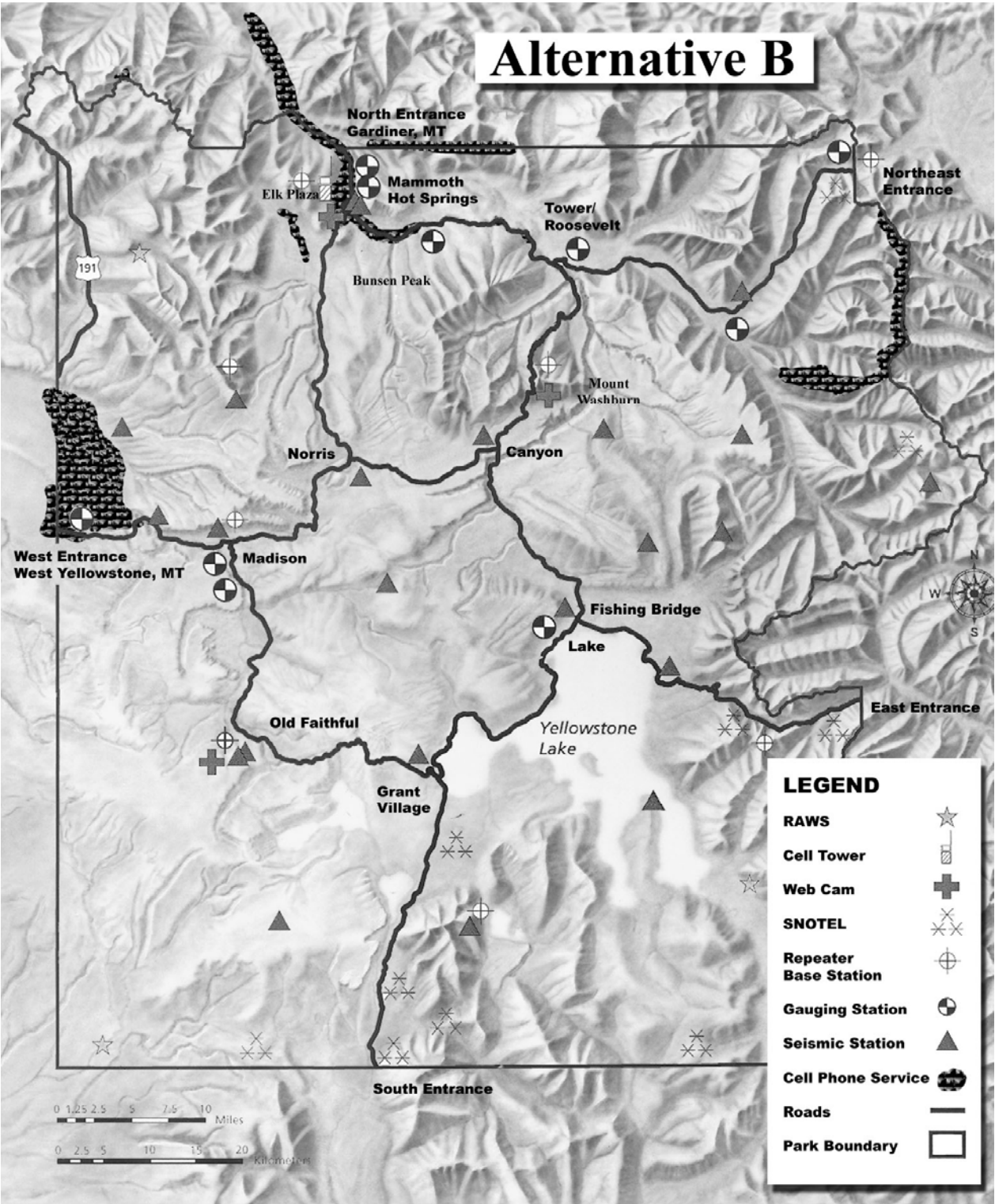


Figure 3 - Alternative B

Under Alternative B, *Reduction in Wireless Services*, only the most basic of wireless services needed for life, health, and safety would be allowed, and the overall number of WCFs would be reduced in the park. Cellular phone facilities would be eliminated at the Old Faithful, Grant Village, Canyon, and Tower-Roosevelt development areas, and service would no longer be available. Cellular phone service would remain in the Gardiner-Mammoth area. The cell phone antennas that are currently on Bunsen Peak would be relocated to Elk Plaza. All WCF equipment and the power transmission line to the summit of Bunsen Peak would be removed or relocated to Elk Plaza. The passive reflector used in the commercial phone and data system would remain at Bunsen Peak. The footprint of the existing facility at Elk Plaza would expand, including a possible increase in the height of the tower, and a slight expansion of the existing fenced area or construction. Installation of a new equipment shelter within the Elk Plaza site might be necessary to accommodate the relocated equipment. Some antennas on Mt. Washburn would be relocated onto a newly constructed support structure to remove wireless infrastructure from the historic lookout and to reduce existing safety hazards. Guidelines and criteria listed later in this chapter as “common to all action alternatives” would be implemented.

New proposals to install additional wireless communications services, equipment would be allowed under emergency situations, and reviewed by the park Telecommunications Committee which is led by the telecommunications specialist and comprised of members from compliance and resource programs.

NPS Radio

The park would upgrade and install new equipment and functions to the NPS radio system as needed to meet changing technology and federal mandates. No new NPS radio repeater sites would be installed, unless there have been documented high risks to health and human safety.

Cell phone

Cell phone facilities would be eliminated from the Old Faithful, Grant Village, Canyon, and Tower-Roosevelt developed areas and service would no longer be available. The existing cellular antennae monopole and equipment shelter would be removed at Old Faithful. The road to the site would remain to allow access to the domestic water supply for the area. The existing cellular antennae monopole and equipment shed located near the Grant Village water tank would be eliminated. This area would continue to function as a utility area serving the Grant developed area. The cellular antennas would be removed from the fire lookout structure located at the summit of Mt. Washburn. Removal of these antennas would eliminate cellular service from both Canyon and Tower-Roosevelt developments. Cell phone service would remain in the Mammoth Hot Springs area. This service originates from the lattice WCF tower currently located at Elk Plaza, and also serves the community of Gardiner, Montana, and the areas north and east Yellowstone National Park.

The six-foot cellular antenna and associated equipment on top of Bunsen Peak would be relocated to Elk Plaza. All other equipment, except the passive reflector for commercial phone service, atop the peak would be removed, including the two FM radio antennas. The passive reflector used by commercial phone and data provider would remain in service on Bunsen Peak. The overhead electric power line from Mammoth Hot Springs to the top of Bunsen Peak would also be removed. The footprint of the Elk Plaza facility would be expanded slightly; the current tower would be increased in height by up to 20 feet to accommodate the cell phone antennas that would be relocated from Bunsen Peak. Installation of a new equipment shelter within the Elk Plaza footprint may be necessary under this alternative to accommodate relocated equipment.

A new support structure would be erected atop Mt. Washburn that would allow antennas and microwave dishes to be relocated from the historic fire lookout structure and associated railings. This

would place a larger distance between park visitors and Radio Frequency emitting equipment. The existing electronic equipment would remain in the equipment room directly below the visitor viewing platform of the existing fire lookout. Views from the visitor viewing platform are currently to the east, south, and west. The relocation of existing facilities would be placed as much as possible to the north and northwest to maintain and improve the views from the viewing platform.

Resource Monitoring

There would be no increase in volcano monitoring equipment or new sites. However, existing equipment could be upgraded. The stream gauging station currently located on Soda Butte Creek would be removed and the area rehabilitated to natural conditions.

No new RAWs would be installed as part of this alternative. Existing RAWs at Old Faithful (located near the clinic and ranger station), Mt. Washburn, and others would be eliminated in this alternative. Over time, the existing 11 manual and automated weather stations could be reduced to five or six RAWs. The Bechler RAWs would be upgraded. The existing guyed tower would be replaced with a platform and tripod structure that does not require guy wires.

Any new research permit application that proposes to install wireless communications equipment would be reviewed by the park's Research Permit Committee as described in Alternative A. If a proposed research project might have impacts greater than negligible or minor, the permit application would additionally be reviewed by the park's Resource Compliance Team as described in Alternative A. Any new research permit application that proposes to install wireless communications equipment would be reviewed by the park Telecommunications Committee, described in Alternative A.

Wireless Internet (WiFi)

Wireless Internet service would be limited to those areas and buildings that currently have it installed. These include 19 employee dormitories located at all major developed areas of the park except Tower-Roosevelt; Yellowstone Park School; and the Mammoth Clinic. Access to these systems would continue to be for dorm residents, and for park administrative and work functions related to the buildings served. No additional WiFi services would be approved.

FM Radio Stations

The two existing FM radio station antennas and equipment, KMTN (Jackson, WY) and KEMC (Billings, MT), currently rebroadcast from Bunsen Peak would be removed. The translator equipment would be relocated to Elk Plaza and two new stations would be rebroadcast. The two existing FM stations, KXLB (Bozeman, MT), and KMMS (Bozeman, MT), would continue with rebroadcast from Elk Plaza. One frequency that is available to the Mammoth/Gardiner FM Association and not currently used would be retained for use as needed. Equipment at Elk Plaza would continue to be located in the existing equipment building.

Alternative C: Limited Increase in Wireless Services (Preferred Alternative)

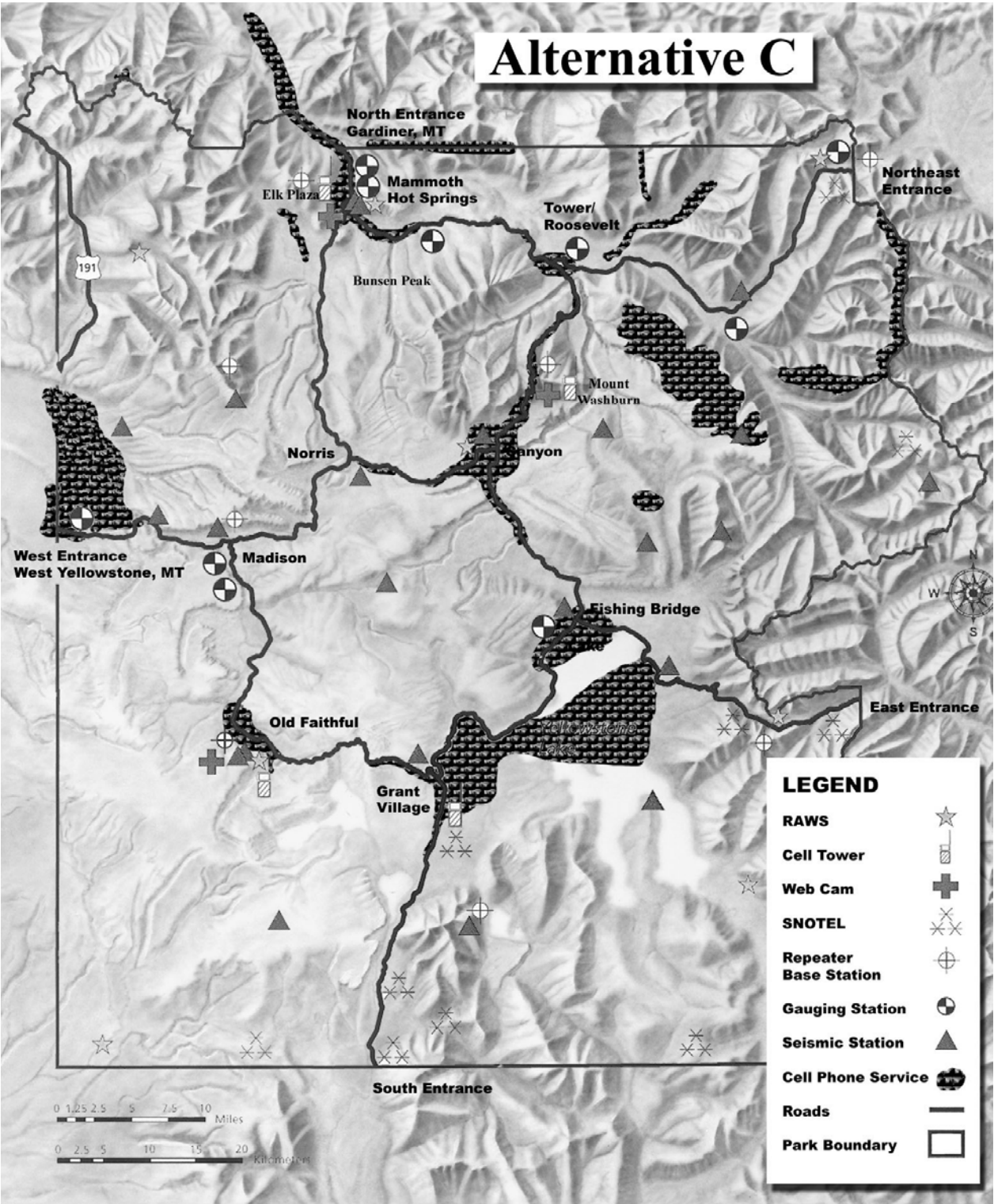


Figure 4 - Alternative C

Under Alternative C, *Limited Increase in Wireless Services*, cell phone coverage and WCFs would be allowed at the existing areas (Mammoth, Canyon, Tower-Roosevelt, Old Faithful and Grant developed areas). New cell phone coverage would be allowed at the Lake developed area using temporary or permanent infrastructure and equipment. The cell tower at Old Faithful would be relocated to a site near the water treatment plant when feasible. Viewsheds and safety at Mt. Washburn lookout would be improved by relocating antennas to a new platform tower adjacent to the existing location. Associated equipment would remain in the existing space under the visitor observation deck of the lookout. Obsolete equipment would be removed from Bunsen Peak. Cellular infrastructure originating from Bunsen Peak would be relocated to the Elk Plaza location. New infrastructure would be added on Bunsen Peak to increase the capacity of the data transmission system within the park. The electric transmission line to the summit of Bunsen Peak would remain, but the equipment shed would be replaced with a smaller cabinet-sized weather-proof enclosure to accommodate the FM translation equipment. Guidelines and criteria listed later in this chapter as “common to all action alternatives” would be implemented.

Any new proposals to install additional wireless communications services, repeater sites, or equipment would be reviewed by the park Telecommunications Committee, which is led by the telecommunications specialist and comprised of members from compliance and resource programs. This committee would review each proposal for purpose and need, resource impacts, and adherence to the guidance established by this plan, NPS DO-53, frequency coordination, and permitting by the FCC. The committee would make recommendations to the superintendent regarding the issuance of permits. The committee would also update the criteria established in this plan based on technology changes, make recommendations based on new technology, and document all decisions regarding wireless communications projects.

NPS Radio

The park will upgrade and install new equipment and functions to the NPS radio system as needed to meet changing technology, federal mandates, and park needs. Any new proposals to install additional wireless radio equipment will be reviewed by the park Telecommunications Committee, as described in Alternative B.

Cell phone

Cell phone coverage would remain at Mammoth, Canyon, Tower-Roosevelt, Old Faithful and Grant developed areas. New cell phone coverage would be allowed at the Lake developed area. Three potential locations have been considered for a new antenna mounting structure to serve the Lake developed area. These three sites include: the existing lattice tower (which houses a microwave dish used by Qwest) located just north and west of the Fishing Bridge Junction (Fig. 5), near the entrance to the wastewater treatment facility (Fig. 6), or near the existing water tank located to the west of the Lake administrative area (Fig. 7). Antennas for this new cell coverage at Lake would be configured to minimize spillover coverage into Yellowstone’s backcountry. All three potential sites have power and road access. None of the sites are located in recommended wilderness. All sites would be hidden from view of developed areas, the Grand Loop Road, and area hiking trails. The park would evaluate other sites to serve the Lake developed area so they meet the guidelines and criteria listed in the “Guidelines and Criteria for Siting, Design, Construction and Operations” section of this chapter.



Figure 5 Existing Lattice Tower, NW of Fishing Bridge

A new antenna mounting structure would be constructed at the summit of Mt. Washburn to relocate existing antennas and microwave dishes from the fire lookout structure (Fig. 8). This would address current safety concerns and viewshed impacts from the historic lookout. A new secure equipment building would be placed near this new mounting structure, and would not exceed one story in height (10'-15').



Figure 6 Wastewater Treatment Plant Entrance, Fishing Bridge



Figure 7 Water Tank Site, Lake

The Old Faithful cell tower would be relocated to an area near the Old Faithful water treatment plant when it becomes feasible to reduce the overall visibility of the tower. This would not occur before the current right-of-way (ROW) agreement with the cell phone provider expires in 2009. This relocation could result in a slight decrease in service near the Old Faithful developed area along a few miles of the Grand Loop Road.

The equipment and antennas associated with cell phone service atop Bunsen Peak would be relocated to the current Elk Plaza. New infrastructure would be added



Figure 8 Photo simulation concept for an antenna platform on Mt. Washburn
Existing conditions are shown in the left-side image

Courtesy Signing

Signing and protocols would be developed to help guide visitors in the courteous use of cell phones and other portable communications technologies.

to the top of Bunsen Peak to increase the capacity of voice and data transmission throughout the park.

While this system has not yet been designed, it would most likely use a powered microwave dish to relay additional bandwidth through an interim point to Mt. Washburn, and then be redistributed to the developed areas of the park.

Applications to the FCC for additional radio frequency spectrum would have to be completed and approved in order for this to occur. The existing electric power line to the summit would remain in service for this purpose, if and when it occurs. Any new proposals to install additional cell equipment will be reviewed by the park Telecommunications Committee, as described in Alternative B.

Courtesy signing and protocols would be developed and installed to help guide visitors in use of cell phones and other portable communications technologies. The wireless communications provider would be required to fund outreach projects to educate visitors in adhering to these protocols.

Resource Monitoring

This alternative would provide for the implementation of the Yellowstone Volcano Observatory (YVO) Monitoring Plan, with the exception that three gauging stations proposed in the Bechler area and the Upper Yellowstone River would not be installed to reduce wilderness impacts. Five proposed new seismic stations, would be allowed in this alternative; four are in park developed areas or road corridors (East Entrance, Northeast Entrance, U.S. 191 north of West Yellowstone, MT and Roaring Mountain–Obsidian Cliff road corridor), and one is within recommended wilderness in the Thorofare region in the southeast corner of Yellowstone. Because the proposed seismic station at Thorofare is within the park’s recommended wilderness, a Minimum Requirement Analysis would be completed and reviewed by the park Wilderness Committee prior to installation. Three new stream gauging stations are proposed for installation in the park (one on the Gibbon River near Norris, one on the Firehole River between Upper and Midway Geyser basins, and one on the Yellowstone River between Otter Creek and Chittenden Bridge). Gas monitoring stations would be deployed temporarily (up to one year) while gas monitoring strategies continue to be developed. All other proposals in the YVO Monitoring Plan are equipment upgrades to existing facilities.

Existing RAWS sites within the park would be maintained. A new RAWS would be installed in the northeast portion of the park near the Warm Springs trailhead. Manual weather stations located at Mammoth, Old Faithful, and Canyon would be replaced with RAWS over time, and as feasible. Existing tower structures and weather collecting sites would be used for upgrades. The Bechler RAWS would be upgraded and the existing guyed tower would be replaced with a platform and tripod structure that does not require guy wires. The National Weather Service proposal to upgrade existing automated weather stations at Mammoth, Tower-Roosevelt, Old Faithful and East Entrance would be proposed to monitor flash flood, storm development, and landslide conditions. A site at East Entrance would be determined using the siting criteria found later in this chapter. A temporary RAWS located on Hoyt Peak to monitor avalanche conditions on the East Entrance Road near Sylvan Pass would be made permanent.

Any new research permit application that proposes to install wireless telecommunications equipment would be reviewed by the park’s Research Permit Committee and Telecommunications Committee as described in Alternatives A and B, respectively. If a proposed research project might have impacts greater than negligible or minor, then the permit application would additionally be reviewed by the park’s Resource Compliance Team as described in Alternative A. If a research project is proposed

within Yellowstone's recommended wilderness, then a Minimum Requirement Analysis application would be completed and the permit application would be reviewed by the park's Wilderness Committee as described in Alternative A.

The National Ecological Observatory Network (NEON) is a continental-scale monitoring platform for discovering and understanding impacts of climate change, land use change, and invasive species on ecology. NEON would gather long-term data on ecological responses of the biosphere to changes in land use and climate, and on feedbacks with the geosphere, hydrosphere, and atmosphere. It would consist of distributed sensor networks and experiments linked by advanced cyber-infrastructure to record and archive ecological data for at least 30 years. The Yellowstone Northern Range site has been selected by NEON, Inc. as one of 20 Core Wildland Sites throughout the country. Core NEON sites would require permanent scientific monitoring equipment. A full proposal would detail what types and where such infrastructure is needed. Any infrastructure proposals would follow the guidelines determine through this plan and additional compliance might be required.

Wireless Internet (WiFi)

Wireless Internet service would remain in the areas where it is currently installed (described in Alternative A), and would additionally be allowed in park hotel lodging rooms and lobbies, stores, administrative facilities, and medical facilities. WiFi would be available for administrative use by concessioners and partner organizations. WiFi would be available in developed areas where cell towers are installed for residential subscription. The park would work with its concessioners to develop WiFi-free zones, courtesy protocols, and courtesy signing. Areas such as the Sun Room and porch at the Lake Hotel, the porch of the Roosevelt Lodge, the 1st floor of the Old Faithful Inn, and the Map Room of the Mammoth Hotel, would be kept WiFi-free as much as possible by limiting technologies under the park's control in these areas.

Webcams

Existing webcams within developed areas could be upgraded to wireless, or new wireless webcams could be installed in developed areas of the park if they are found to meet the siting criteria listed later in this chapter. No wireless webcams for visitor use would be installed within the backcountry areas of the park. It is possible that wireless webcams could be placed in backcountry areas for resource monitoring or to address safety concerns.

FM Radio Stations

The existing FM radio station and equipment would remain, but would be placed in smaller cabinet-sized equipment enclosures. The Gardiner/Mammoth FM Association would continue to provide rebroadcast of KMTN (Jackson, WY), KEMC (Billings, MT), KXLB (Bozeman, MT), and KMMS (Bozeman, MT). Two stations are rebroadcast from Elk Plaza, and two from Bunsen Peak. One frequency that is available to the association and not currently used would be retained for use as needed. The existing radio equipment at Elk Plaza would continue to be housed in the existing equipment building. Existing antennas for each station would be retained.

Electrical Power at Mt. Washburn

The existing power line to the top of Mt. Washburn is buried along the Chittenden Road, from the Grand Loop Road to a point about one quarter of a mile from the summit of Mt. Washburn. From this point the electric line is only semi-buried or lies on the surface of the ground and runs to the summit of Mt. Washburn. This aboveground portion of the service line has been considered to be near obsolete for a number of years, and should be replaced to supply a more reliable, increased amount of electric power to the summit. The current power supply limits any expansion or upgrade

of system components. The power supply has only one meter on the system, and the park is currently being billed for all power used by multiple entities on the mountain.

A new upgraded electric power line would be installed and buried within the existing roadbed or ditch of the last quarter-mile of the Chittenden Road on the north side of Mt. Washburn to the summit. The existing electric line that lies atop the ground would be removed. This upgraded power to Mt. Washburn would allow for individual metering of electric power consumption for all users.

Bandwidth Upgrade into the Park

A new facility would be constructed at the summit of Bunsen Peak to allow for additional wireless data transmission from Mammoth to Mt. Washburn. Data transmission from Mt. Washburn would then be distributed throughout the park. This facility would need at least two microwave dishes to beam signals from Mammoth to an interim point, and then to Mt. Washburn. Additional electronic equipment would be located in a new equipment building. Security fencing would be installed. Any new site would adhere to the guidelines and criteria listed later in this chapter.

Alternative D: Substantial Increase in Wireless Services

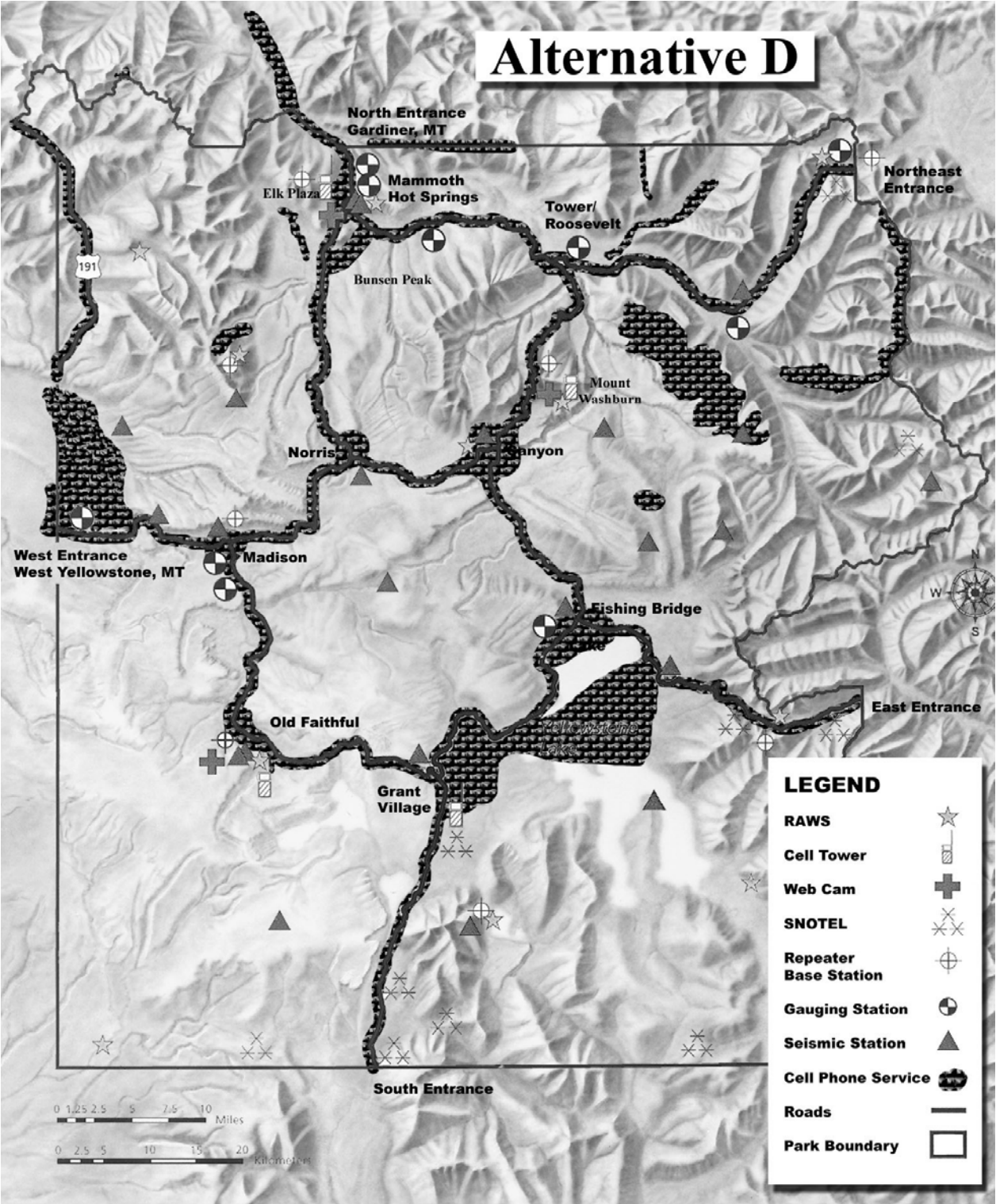


Figure 9 - Alternative D

Under Alternative D, *Substantial Increase in Wireless Services*, applications for new cell phone coverage and WCFs would be considered to allow: 1) cell coverage for the Lake developed area using temporary or permanent infrastructure and equipment, 2) seasonal (summer) cell coverage at the Norris, Madison, Bridge Bay, Tower-Roosevelt, and Fishing Bridge campgrounds through construction of new temporary or permanent facilities, and 3) cell coverage along primary roads (the Grand Loop Road, and the five entrance roads) using antennas on existing power line poles and/or additional cell towers.

The cell tower at Old Faithful would be camouflaged at its existing site to reduce the impact on the historic district when feasible. A new cell tower and associated equipment building would be installed on Mt. Washburn. Viewsheds and safety at Mt. Washburn lookout would be improved by relocating antennas to a new platform tower adjacent to the existing location. Associated equipment would remain in the existing space under the visitor observation deck of the lookout. Obsolete equipment would be removed from Bunsen Peak. Cellular infrastructure originating from Bunsen Peak would be relocated to the Elk Plaza location. New infrastructure would be added on Bunsen Peak to increase the capacity of the data transmission system within the park. The electric transmission line to the summit of Bunsen Peak would remain, but the equipment shed would be replaced with a smaller cabinet-sized weather-proof enclosure to accommodate the FM translation equipment. Guidelines and criteria listed later in this chapter as “common to all action alternatives” would be implemented.

Any new proposals to install additional wireless communication services and equipment would be reviewed by the park Telecommunications Committee as described in Alternative C.

NPS Radio

The park would upgrade and install new equipment and functions to the NPS radio system as needed to meet changing technology, federal mandates, and park needs. New repeater sites would be added to address gaps in the current NPS radio coverage.

Cell phone

Cell phone service and WCF would be added at Lake as described in alternative C. The Old Faithful cell tower would remain at its existing location and would be camouflaged to reduce its impact on the Old Faithful Historic District when it becomes feasible to do so. This would not occur before the current right-of-way agreement with the cell phone provider expires. Cell phone coverage would be added to the Grand Loop Road, and the five paved entrance roads of the park. This coverage would provide additional cellular service for accident reporting, improved communications for park staff, the ability for visitors to use cell phones from the many vehicle turnouts provided throughout the park, and for passengers to use cell phones while riding in vehicles.

New WCF infrastructure would be required to provide coverage along the park’s main road network. Power lines would have to be trenched along the roads where power is not currently available (see Fig. 10) to allow for multiple cell sites. Vehicle turnouts near the sites would have to be constructed to allow maintenance vehicles access from the main road. Antenna mounting structures would have to be added along the roads at a frequency and number that would allow for this “line of sight” technology to give continuous cell phone coverage. In areas where existing power or other utility poles exist, cellular antennas would have to be added, or placed in lieu of an existing power line pole, in order to mount antennas.

All campgrounds more than 100 campsites (Norris, Madison, Bridge Bay, Fishing Bridge and Tower Falls) and the five major park entrances would have cellular service via either permanent or seasonal facilities. Antennas and associated equipment would have to be installed near each of these sites and

located to give the best coverage and remain as hidden as possible. Power would have to be added in areas where it is currently lacking. The additional cell service described in this alternative would require construction of approximately 13–18 new cellular sites to cover the roads and campgrounds. Any new proposals to install additional cell equipment would be reviewed by the park Telecommunications Committee, as described in Alternative B.

Resource Monitoring

This alternative would allow for the installation of the proposed YVO monitoring plan as described in Alternative C. Additional monitoring stations would be installed including stream gauging stations in Yellowstone's backcountry (Bechler and Yellowstone Rivers).

Existing RAWS sites within the park would be maintained. A new RAWS would be installed in the northeast portion of the park near the Warm Springs trailhead. Manual weather stations located Old Faithful and Canyon would be replaced with RAWS over time, and as feasible. Existing tower structures and weather collecting sites would be used for the upgrades. The Bechler and Mammoth RAWS would be upgraded and the existing guyed tower would be replaced with a platform and tripod structure that does not require guy wires. Additionally, three manual weather stations located at Mt. Washburn, Mt. Sheridan, and Mt. Holmes would be converted to RAWS as funding permits. The National Weather service proposal to upgrade existing automated weather stations at Mammoth, Tower-Roosevelt, Old Faithful and East Entrance is proposed to monitor flash flood, storm development, and landslide conditions. A site at East Entrance would be determined using the siting criteria found later in this chapter. A temporary RAWS located on Hoyt Peak to monitor avalanche conditions on the East Entrance Road near Sylvan Pass would be made permanent.

Any new research permit application that proposes to install wireless telecommunications equipment would be reviewed by the park's Research Permit Committee and the Telecommunications Committee as described in Alternatives A and B respectively. If a proposed research project might have impacts greater than negligible or minor, then the permit application would additionally be reviewed by the park's Resource Compliance Team as described in Alternative A. If a research project is proposed within Yellowstone's recommended wilderness, a Minimum Requirement Analysis application would be completed and the permit application would be reviewed the park's Wilderness Committee as described in Alternative A.

The National Ecological Observatory Network (NEON) would be established as in Alternative C.

Wireless Internet (WiFi)

WiFi would be provided in guest lodging rooms, park stores, and administrative facilities throughout the park. WiFi for use by the general public would be provided, when it becomes feasible, to most developed areas of the park. This service would be either a free system, or available through resale by a vendor or concessioner. This service would also be available in campgrounds with more than 100 sites. WiFi service would be provided in park residential areas either through a free system or through a vendor or concessioner. WiFi-free zones would be established in the areas listed in Alternative C. Courtesy signing and protocols would be developed and installed as in Alternative C.

FM Radio Stations

The existing FM radio station and equipment would remain, but would be placed in smaller cabinet-sized equipment enclosures. The Gardiner/Mammoth FM Association would continue to provide rebroadcast of KMTN (Jackson, WY), KEMC (Billings, MT), KXLB (Bozeman, MT), and KMMS (Bozeman, MT). Two stations are rebroadcast from Elk Plaza, and two from Bunsen Peak. One frequency that is available to the association and not currently used would be retained for use as

needed. The existing radio equipment at Elk Plaza would continue to be housed in the existing equipment building. Existing antennas for each station would be retained.

Webcams

As in Alternative C, existing webcams within developed areas could be upgraded to wireless, or new wireless webcams could be installed in developed areas of the park, if they are found to meet the siting criteria listed later in this chapter. No wireless webcams for visitor use would be installed within the backcountry areas of the park. It is possible that wireless webcams could be placed in backcountry areas for resource monitoring or to address safety concerns, if installed, these would only occur on fire lookouts.

Electrical Power at Mt. Washburn

As in Alternative C, a new electric power line would be installed and buried within the existing roadbed or ditch of the Chittenden Road, for about the last quarter-mile to the summit on the north side of the peak. This power line would replace the existing electric line that lies atop the ground. Upgraded power to Mt. Washburn would allow for individual metering of electric power consumption for all users.

Bandwidth into the Park

A new facility would be constructed at the summit of Bunsen Peak to allow for additional wireless data transmission from Mammoth to Mt. Washburn. Data transmission from Mt. Washburn would then be distributed throughout the park. This facility would need at least two microwave dishes to beam signals from Mammoth to Mt. Washburn. Additional electronic equipment would be located in a new equipment building. Security fencing would be installed.

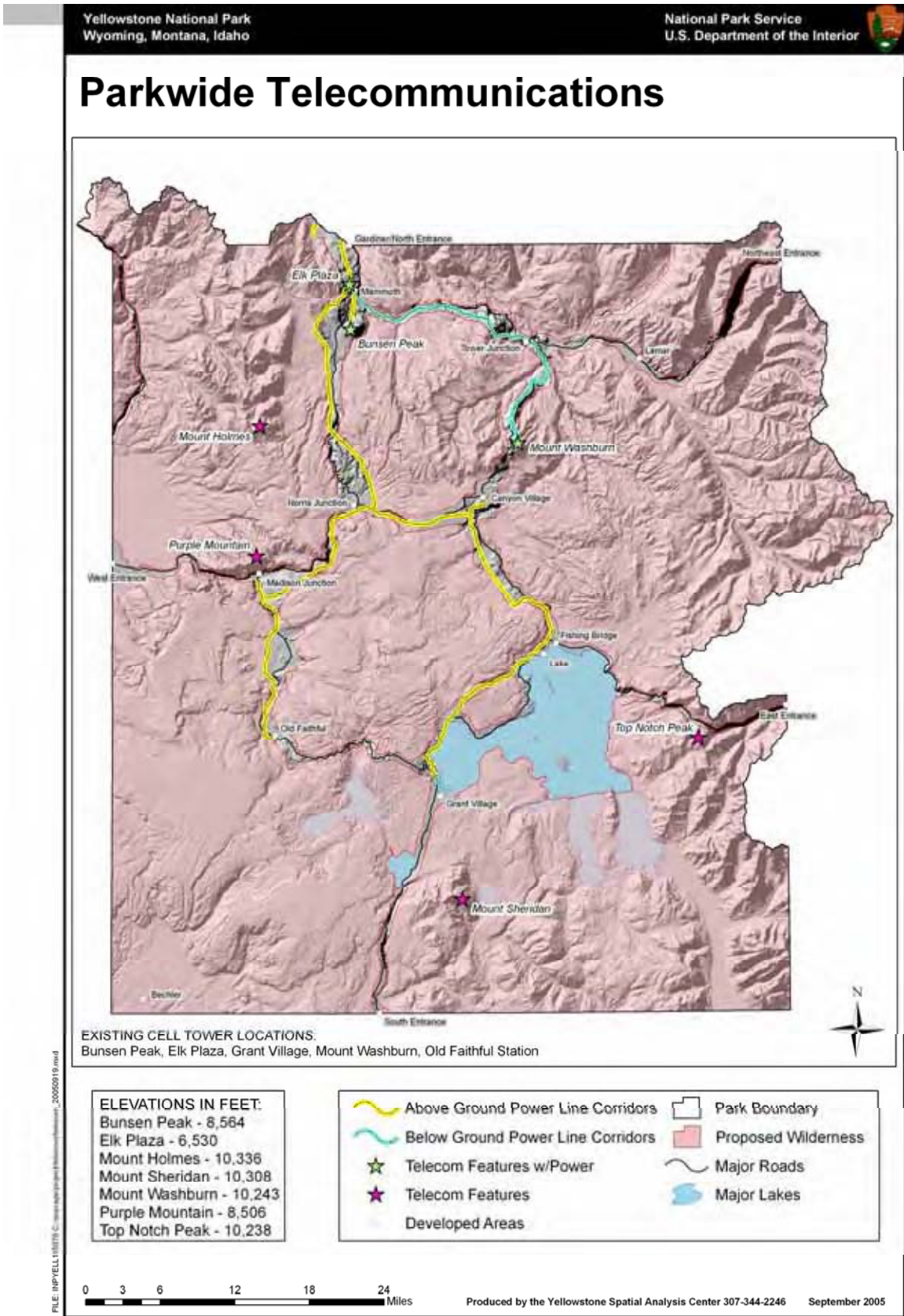


Figure 10 - Existing Power Lines

Procedures and Constraints Common to All Alternatives

Any proposed project will be subject to compliance with applicable laws, regulations, and NPS policies. For example:

- Proposed WCFs will be submitted to the park at the conceptual design stage for NEPA and NHPA scoping and review of consistency with park plans. The final construction plans, including all mitigations, will be presented in a formal application for final review of consistency with park plans and NEPA, NHPA (Section 106), and ESA requirements.
- Park staff will send a copy of the application for a proposed WCF to the managers of federal lands adjacent to the proposed site so that they can comment on potential impacts or other matters of concern.
- Park staff will comply with NPS DO-53 (Paragraph 10.3) and its implementing guidance in NPS Reference Manual 53 (RM-53), (Appendix 5, Exhibit 6). These policies direct how the NPS implements the Telecommunications Act of 1996 and subsequent directives, including requirements for notices in local newspapers and the Federal Register after NEPA and NHPA review has been completed.
- Some people are concerned about the EMF radiation generated by wireless equipment. The FCC has established EMF safety standards and extensive domestic and international research has not determined any hazard from WCFs operating at regulated power levels. No single WCF or combination of WCFs will be permitted to produce power densities anywhere in the park that exceed the FCC standards for human exposure at the point of closest public access.
- Any WCF must be constructed in a manner that meets the minimum requirements and standards of the Standard Building Code, the National Electrical Code, and the Standard Mechanical Code.
- The NPS strives to construct facilities with sustainable designs and systems that minimize environmental impacts and do not compete with or dominate the park's natural features or interfere with natural processes, such as the seasonal migration of wildlife or hydrothermal processes (*NPS Management Policies 2006*). To the extent possible, the WCF design and management should emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. The NPS also attempts to reduce energy costs and consumption by using energy-efficient and cost-effective technology.

This Yellowstone WCS Plan/EA will be used as the NEPA document to cover all subsequent wireless communications proposals that have direct, indirect, and cumulative impacts no greater than moderate, either adverse or beneficial, to any park resource. With respect to species protected under the ESA, projects that have moderate effects, (i.e., those that may have adverse effects on individuals or populations) would require additional consultation with the U.S. Fish and Wildlife Service under Section 7 of the ESA. However, even if the action could have a significant impact, emergencies requiring immediate action are exempt from the Council on Environmental Quality's regulatory provisions for implementing NEPA. In the event of an emergency, the park would take immediate action to prevent or reduce risks to public health and safety or serious resource losses. These actions could include the temporary placement of telecommunications or resource monitoring equipment to help manage the incident. Examples of emergency actions are cleanup of immediately threatening hazardous materials spills, fire suppression, and prevention or repair of damage by floods or other natural disasters.

For purposes of this section, the term “WCF” includes all associated infrastructure (equipment, antennas, poles, towers, supports, structures, power, conduit, access roads, and other components) used for construction, operation and maintenance of the WCF.

WCF Applications

Only FCC licensees can submit applications for sites for WCFs. All requests for wireless communications services, whether for a cell tower, a resource monitoring site, weather monitoring site, or a site to help improve public safety, will be directed to the park’s telecommunications specialist and referred to the Telecommunications Committee, comprised of park staff from compliance and resource programs. This committee will review each proposal for purpose and need, adherence to NPS DO-53, frequency coordination, and permitting by the FCC. The committee will determine if the proposal is consistent with the selected alternative of this plan, ensure that actions are incorporated into the project to minimize resource impacts, and recommend a course of action for the Superintendent, who will decide whether to approve, deny, or request further information on the proposal.

Park managers must ensure that any WCFs approved for installation in Yellowstone National Park are appropriately sited and do not degrade park resources or present hazards to park visitors or wildlife, that the requirements imposed upon WCFs by adjacent jurisdictions have been considered; and that compliance with NEPA and the NHPA is fully informed by knowledge of how to avoid adverse effects and use available techniques for mitigation. DO-53 Paragraph 10.3 and RM-53 Appendix 5 are not applicable to broadcast television or radio towers, microwave facilities, amateur radio, or other non-WCF. Other sections of RM-53 contain procedures to be used to consider applications for these types of non-WCF. If a WCF is approved, an internal memo to file would be written and added to the project administrative record.

Pursuant to the regulations in 36 CFR 14 and RM-53 guidance, the park will recover from WCF proponents the full cost of work related to processing their applications, NEPA and NHPA compliance (including subsequent environmental monitoring), and issuance and management of permits, including design review, plan checking, and construction inspection. The NPS is also required to collect a fair market value permit charge.

Right-of-Way Permits

Utility services have long been located in NPS units to provide service within a park or because geographic or other considerations necessitate the use of park lands to provide service outside the park. Title 16, United States Code, Section 5, and other authorities allow the NPS to issue right-of-way permits for such services under specified conditions. RM-53 provides detailed instructions on how to process and when to approve applications for rights-of-way permits. The permit documents proponent compliance with all conditions of approval. Right-of-way permits for Yellowstone lands must be signed by the NPS Intermountain Regional Director to become effective.

For WCFs that require a right-of-way permit (currently cellular communications towers and associated infrastructure), the park would issue a notice in the Federal Register per the requirements of NPS DO/RM-53. The public would have an opportunity to comment on the proposed tower and right-of-way permit. If the impacts of the proposed cellular tower would not exceed the criteria described in this EA and public comments do not indicate a potential for greater adverse impacts or reveal impacts that were not analyzed in this EA, the park would write a memo to file as part of the project administrative record and issue a permit for wireless use. If appropriate, the park would issue a press release notifying the public of this decision.

Mitigation Measures

Wireless telecommunications (e.g., cellular and other wireless telecommunications services) are a form of public utility, typically with multiple carriers authorized by the FCC to provide service in an area. They require a network of sites housing the equipment and antennas used to broadcast and receive signals from users. The nature of the technology creates the potential for significant visual and other resource impacts because multiple antennas may be spaced at regular intervals (especially if tall monopoles are installed to mount antennas), the antennas need to be placed in locations offering clear line-of-sight, and the network must be connected to existing electrical and telephone systems and accessible for maintenance; all of which make them highly visible.

To minimize the adverse effects to park resources from the construction and presence of wireless communication services and facilities, the following measures will be adhered to regardless of which alternative is selected. For Alternatives B, C, and D, the more specific criteria set forth under “Guidelines and Criteria for Action Alternatives” will also apply.

To preserve park resources

- Resource monitoring equipment will be placed in a recommended wilderness area only if it will provide information of scientific, educational, conservation, or historical use and if it can be installed in a way that preserves the wilderness character of the area.
- If it is necessary to use a historic structure as an antenna mount, park staff would monitor all placement activities to minimize the possibility of damage to the structure, and ensure that the mount is positioned to minimize its visibility to the public. Section 106 compliance would be initiated for any National Register listed or eligible property.
- Construction workers and supervisors will be informed about relevant park regulations and the importance of taking appropriate measures to minimize impacts to park resources.
- Construction workers and supervisors will be informed about special status species. If one of these species is discovered in a project area, contract provisions will require cessation of construction activities until park staff can assess the situation. The contract will be modified if necessary to protect the species.
- Construction activities will not be permitted in locations where archeological or paleontological resources are known to be present. If such resources are discovered during construction, the work will cease until park staff have consulted with the State Historic Preservation Officer and the Advisory Council on Historic Preservation (§36 CFR 800.13, *Post-review Discoveries*). In the unlikely event that human remains are discovered, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- Contractors and subcontractors will be informed of the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties.

To minimize ground disturbance

- Staging and stockpiling areas will be located in previously disturbed sites, away from visitor use areas to the extent possible, and returned to pre-construction conditions following construction.
- The minimum area needed for an approved construction activity will be delineated by construction tape, snow fencing, or similar material. All protection measures will be clearly stated in the construction specifications and workers will be instructed to avoid conducting activities beyond the identified construction zone.

- Because disturbed soils are susceptible to erosion until revegetation takes place, standard erosion control measures such as the use of silt fences will be used to minimize the possibility of soil erosion or impacts from soil erosion.

To minimize impacts during construction

- If necessary, dust generated by construction activity would be controlled by spraying water from an approved source on the site.
- The contractor will regularly monitor and check construction equipment to identify and repair any petrochemical leaks.
- To reduce noise and emissions, construction equipment will not be permitted to idle for extended periods and construction workers will not be permitted to broadcast portable audio devices through speakers.
- The timing of construction activities may be altered to minimize impacts on park visitors. One option would be to conduct most of the work in the off-season (winter) or shoulder (spring/fall) seasons. Another option would be to prohibit the use of construction equipment from 6 PM to 7 AM in summer (May–September), and 6 PM to 8 AM in winter (October–April). The National Park Service would determine this in consultation with the contractor.

To restore disturbed areas

- All disturbed areas would be restored shortly after construction activities are completed. Revegetation and recontouring would be designed to minimize the visual intrusion of the WCF while replicating as nearly as possible pre-construction conditions. Revegetation efforts would strive to replicate the natural spacing, abundance, and diversity of the native plant community. Weed control methods will be implemented to prevent the introduction of non-native species.

Guidelines and Criteria for the Action Alternatives

Under Alternative A, *No Action*, the NPS would not adopt comprehensive guidelines and park managers would continue to evaluate proposals for wireless services on a case-by-case basis. Under Alternatives B, C, and D, park managers would use the following guidelines to determine whether to approve a proposed project and how to mitigate its impacts on park resources and values. These guidelines would be updated over time to reflect changes in technology and experience in the park and other jurisdictions regarding wireless services.

The guidelines are intended to:

- Permit wireless telecommunications services in a manner that is sensitive to and protects the scenic, natural, cultural, and historic values of Yellowstone National Park and considers the health, safety and welfare of visitors, staff, residents, and cooperating agencies and neighbors of the park;
- Identify the issues that must be addressed in considering applications for wireless services and infrastructure in the park;
- Identify best practices, as they relate to protection of park resources, for the siting and design of WCFs (to be completed by the Telecommunications Committee);
- Provide guidance to potential WCF proponents, park staff, and interested members of the public that adheres to the procedural requirements of DO-53 and RM-53.

In order to eliminate, reduce, and mitigate the impacts associated with the siting of wireless telecommunications equipment within Yellowstone, the review of WCF applications would be conducted in a manner that ensures that proposed WCFs adhere to the guidelines listed below to the greatest extent possible. Additional site-specific requirements may be identified on a case-by-case basis by the Telecommunications Committee.

Application Process

(1) To avoid sensitive or inappropriate WCF sites and select sites that would most readily comply with these guidelines, the WCF proponent would identify proposed sites in conjunction with park staff before a formal application is submitted to the park.

(2) The identification of appropriate sites would seek to maintain the greatest possible distance between the proposed WCF and concentrations of park visitors, residents, and tenants, consistent with technological requirements and other park objectives. In addition to RM-53 notification requirements, the review of applications would include notification of park residents and tenants located within 300 feet of a proposed WCF as well as adjacent jurisdictions to inform them about the proposed site and allow them to comment.

(3) The construction and installation impacts of a proposed WCF would be assessed to ensure that the use of sites which might otherwise be acceptable would not result in the degradation or destruction of park values through site disturbance, construction disturbance, visual effects, thermal effects, noise, or other impacts. New access roads or trails would not be installed to facilitate either the installation or operation of a proposed WCF. To avoid ground disturbance in areas where it has not previously occurred and minimize ground disturbing activities elsewhere, sites would be located to minimize the need for additions to the park's utility infrastructure. All determinations of feasibility regarding mitigations or any other matters related to siting, design, or operation of WCFs would be made by park staff.

(4) To the maximum feasible extent, the consideration of applications for proposed WCFs would include an analysis of current and potential future applications from the proponent and other FCC licensees. Proponents would be required to document that no existing tower or structure could accommodate the proposed WCF, identify sites outside the park that were considered and the reason they were rejected, and submit their master plans indicating all anticipated future WCFs in or within two miles of the park for the next five years. Review of applications for proposed WCFs would include an evaluation of the cumulative impact of the proposed sites as well as existing sites. When proposed sites are approved in a particular area, the "carrying capacity" for additional sites would be assessed to avoid a proliferation of sites which could result in a derogation of park values.

(5) Multiple proponents for proposed WCFs in the same area would be encouraged to enter into joint ventures to reduce impacts to the park and simplify the park's review process. To reduce the number of individual WCF sites, proponents would locate their proposed WCFs with other existing or proposed facilities, including those operated by other carriers, whenever feasible. New sites would, where feasible and consistent with other park objectives, be constructed so that they can accommodate co-location or clustering with future WCFs. Right-of-way permits would contain provisions for proportionate reimbursement of construction costs by future WCF proponents if subsequent co-location occurs.

(6) Park staff would use outside technical experts when necessary to better understand the proponent's technical requirements as they relate to the feasibility of a proposed WCF in the park, but it is not expected that such expertise would be needed in every case. The advice of technical experts would be used to direct proponents to sites that best meet park objectives and do not

degrade park resources. Park staff would consider developing “constraint maps” or other graphical aids as necessary to identify unsuitable locations in the park.

Information Required for Application Submittals

- The final design and detailed mitigation plans for final review of consistency with park plans and approval pursuant to applicable laws.
- A site and coverage map and expected wireless services and realistic photo-simulation that depict the proposed WCF and access, if applicable, after installation.
- If a proposed WCF is within a viewshed, recreational use area, or occupied area, and would be visible if not screened, a vegetation screening plan or camouflaging method.
- Documentation of the extent to which opportunities for co-location or clustering WCFs have been considered, the number of additional WCFs that can be accommodated at the site, and explanation of factors that limit clustering.
- If the proposed site is within the viewshed of a listed landmark or historic property, photo-simulations depicting which elements of the WCF (including screening) could be seen from the historic resource.
- A description of any vegetation manipulation including tree-trimming or removal that would be required prior to the start of construction of the proposed WCF.
- A description of how vegetation would be protected during construction of the proposed WCF and related underground utility connections (e.g., temporary fencing, non-disturbance within tree drip lines, avoidance of tree roots, removal of trash and debris, and exotic vegetation control) and the site restoration plan.
- A description of the frequency and anticipated extent of tree trimming and vegetation management that will be required during operation of the proposed WCF and how these activities would be conducted to prevent adverse impacts and ensure compliance with the park’s Integrated Pest Management Program.
- A description of the frequency and anticipated extent of operations and management needs including access to the proposed site.

Design Standards and Construction Requirements

The proponent must site, design, install, and operate WCFs to minimize site development, ground-disturbing activities, construction-related disturbances, and disturbances to adjacent areas and park activities. Proponents must coordinate ground-based telecommunications requirements with the Telecommunications Office prior to permitting and compliance review. Any required work must be shown on the submitted design and construction documents.

Location of WCFs

- To minimize impacts to the park’s natural habitats of the park, new WCFs would be located with existing clusters of communications equipment or in developed areas if possible; otherwise, altered, fragmented, or degraded habitats would be selected over relatively intact native habitats.
- Radio repeater sites may be located in recommended wilderness areas only if they are determined to be the minimum requirement necessary to carry out wilderness management objectives.
- Access to WCFs must be by existing roads and trails. The WCF proponent may be permitted to repair an unpaved road, but not to pave currently unpaved roads or trails. Additional parking to accommodate the operation of proposed WCFs would be considered only in extraordinary circumstances.

- All WCFs would be designed to promote facility and site sharing by multiple users. The WCF proponent may be required to pay for a report by an independent expert regarding the feasibility of making provisions for co-location by future proponents at the proposed site and strategies that would minimize the number, size, and adverse environmental impacts of a proposed co-located site. The report would also explain the rationale for selection of the proposed site in view of the relative merits of any feasible alternative.
- To ensure that impacts are kept at or below “minor” as described in this EA, WCFs would not be located in a manner that adversely affects a building, district, or element eligible for listing on the National Register of Historic Places. WCFs would not be located where they would be detectable within the viewsheds between historic properties and the natural feature or vista it was designed for, such as the viewshed of the Old Faithful Geyser and surrounding Upper Geyser Basin from the Old Faithful Inn (or vice versa), or the viewshed of Yellowstone Lake and surrounding wilderness from the Lake Hotel or the Fishing Bridge Museum. Proposals must follow *The Secretary of the Interior Standards for the Treatment of Historic Properties* as well as *The Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for the treatment of Cultural Landscapes*.
- The effects on threatened and endangered species would be no greater than “may affect, but not likely to adversely affect.” Construction activity would not occur within 1.0 miles of an active wolf den and individual impact areas (sites) would not exceed 0.05 acres in size. Aircraft support for installation of infrastructure in Lynx Analysis Units, as defined by the Canada Lynx Conservation and Assessment Strategy, would be infrequent (≤ 2 flights per project), and aircraft would remain $> 1,000$ feet above ground level. A vehicle-strike mortality of a lynx associated with any wireless project would preclude additional wireless projects until formal consultation with the U.S. Fish and Wildlife Service was completed.
- Towers would not be located in or near wetlands, known bird concentration areas, or known migratory or daily movement flyways, or habitat of threatened or endangered species. Tower locations would be configured to avoid areas or landscape features that attract raptors (i.e., hawks, falcons, eagles, owls). The siting of WCFs would avoid adverse impacts to wetlands, rare plant populations, species of special concern, and hydrothermal features. If possible, towers would not be located in areas with a high incidence of fog, mist, and low cloud ceilings.

Public Safety

WCFs must include: 1) fencing, barriers, or other structures or devices necessary to restrict access; 2) multi-lingual signage with warnings that the facility could cause exposure to EMF; and 3) other practices reasonably necessary to ensure that the facility is operated in compliance with FCC emission standards.

Fire Safety

Telecommunications towers, antennas, and other supporting equipment must be constructed of metal or other non-flammable material. At least one-hour fire resistant interior surfaces must be used in the construction of all equipment cabinets, enclosures, or other necessary structures. Proponents must install monitored automatic fire extinguishing systems, approved by the park, in all WCF buildings. Proponents are solely responsible for the costs associated with bringing WCFs into compliance with fire prevention requirements identified by the park’s Division of Resource and Visitor Protection. The park may identify additional fire safety requirements for WCFs located in isolated and potentially high fire risk areas.

Facility Height

- In order to minimize above-ground obstacles to birds in flight and visual obtrusion, WCFs can be no taller than necessary to accomplish their objectives.
- To avoid Federal Aviation Administration lighting requirements, no tower can exceed 199 feet in height, as measured from the natural undisturbed ground surface below the center of the base of structure to the maximum height to which the structure can be raised.

- Applications for WCFs taller than 20 feet above the surrounding tree height would require a detailed explanation of why a shorter installation is not feasible.
- The tops of antennas and equipment installed in building-mounted WCFs would not project above the top of the existing structure, excluding existing attachments such as other antennas.
- Ground-mounted WCFs would be mounted on footings or other devices that minimize the addition of impervious areas (e.g., concrete pads).

Minimizing Other Visual Impacts

- A WCF would include only the minimum amount of equipment needed for its operation, and the design plan would indicate how future proponents could be accommodated.
- New utility services for outdoor WCFs will be installed underground or placed in at-grade conduits unless this would disturb previously undisturbed areas or cause other unacceptable resource impacts.
- All ground-mounted towers must be self-supporting monopoles, lattice, or truss structures. The base diameter of any monopole will be the minimum required for the maximum height of the tower. Guyed towers or additional sections to increase the height of monopole towers would not be allowed.
- WCFs would be constructed in a manner that is compatible with the character of surrounding structures or otherwise made unobtrusive through use of the best available technologies (e.g., stealth technology, slimline poles, enclosed antenna, and micro-cells), screening with vegetation or existing topography, concealment, and/or camouflage. However, use of stealth facilities or other best available technologies must not diminish the physical or visual integrity of cultural resources. Locations where protective fencing would be required should be avoided, but if necessary, the proponent would work with park staff to determine the type and color. Rooftop installations would not be visible from the ground. Screening may include painting to match the existing structure or locating the WCFs within attics, towers, and behind and below parapets. Finishes or colors that would be shiny or reflective in sunlight would not be allowed. Proposed projects would include the removal of any existing visual obstructions and clutter on the rooftop or roofline that the park does not wish to retain.
- Trees and other vegetation adjacent to the footprint of the proposed WCF must be protected from damage. Topographic cuts and fills for WCFs must be minimized and justified. Park staff would identify appropriate mitigations for approved cuts or fills.
- Towers, buildings, and equipment would remain unlit unless light is needed for maintenance operations. Full cut-off fixtures would be used to minimize degradation of the night sky. Security or safety lighting for on-ground facilities and equipment would be down-shielded to keep light within the site boundaries.
- Support components (i.e., equipment rooms, utilities, and equipment enclosures) for WCFs must be placed in free-standing cabinets, inside buildings, or within existing rooftop, basement, or free-standing mechanical rooms. These facilities must be fireproof and impervious to theft, vandalism, and wildlife.
- No company logos or advertising would be displayed on WCFs.

Environmental Impacts

- The construction and operation of a WCF would not be permitted to increase sediment loading to any creek, stream, or river. Appropriate storm water management practices would be implemented to manage run-off and avoid creating attractions for birds.
- To minimize bird perching and nesting, external ladders and platforms on tubular towers would be avoided and tubular supports with pointed tops would be used when possible rather than lattice supports.

- Construction activities may be seasonally restricted to avoid disturbance of birds during periods of high activity, especially near breeding, feeding, or roosting areas. While birds are nest building or attending young in a nest on a tower, no nests will be removed or maintenance conducted. Tree-trimming or other vegetation removal would be completed before or after the bird-nesting season, which typically runs from mid-February through mid-August. Any work done during the nesting season would require additional coordination with park staff to ensure protection of nesting sites.
- The U.S. Fish and Wildlife Service personnel or other researchers would be allowed access to WCFs to monitor conditions before and after construction, assess impacts to migratory birds and other wildlife, conduct dead-bird searches, and place net catchments and radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment to collect data on bird movements and the impacts of various tower designs and configurations.
- Proponents would develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts on vulnerable wildlife while maintaining or enhancing wildlife habitat. If mitigation of construction disturbance or installation of screening requires the planting of vegetation, native vegetation of local genetic stock from the area of the park in which the facility is located would be used. A monitoring and control plan would be in place to avoid the introduction or spread of any exotic vegetation.

Issuance of Permits and Activation of WCFs

When a WCF application has been approved, the NPS would issue a permit that is consistent with the NPS Intermountain Region's right-of-way permit for WCFs and contains standard terms and conditions for such permits in national parks along with an addendum for provisions specific to WCFs, including the required mitigation measures. Park staff would carefully supervise the construction of WCFs to ensure consistency with the terms of the permit. The carrier would not be allowed to activate the WCF until all required conditions had been met.

Ongoing Management

The Telecommunication Office would monitor the carrier's compliance with the terms of the WCF permit on at least an annual basis, including a review of insurance coverage, required reports submitted by the carrier, and inspection of the WCF by park staff from the Administration Division, Safety Office, and Fire Department. The Telecommunications Office would work with other park offices to determine whether any resource issues or other matters have arisen that need to be addressed and whether any changes in FCC or NPS requirements or policies require additional actions by the carrier.

Park staff would work with the carrier to avoid the need for additional equipment by switching to newer equipment and antennas of the same or smaller size that could provide any needed increase in capacity whenever feasible.

Terminating WCF Operations

A carrier that plans to abandon or discontinue operation of a WCF would notify the park by certified U.S. mail at least 30 days before the effective date. If a carrier fails to give such notice, the WCF would be considered abandoned upon discontinuation of operations.

Unless prior arrangements have been made or a tower is used for another wireless service, the carrier would be required to remove all WCF equipment within 90 days of the date of abandonment or discontinuation of use. This would include: (1) removal of antennas, mount, equipment shelters and security barriers; (2) proper disposal of waste materials from the site in accordance with local and state regulations; and (3) restoration of the site to its pre-WCF condition or the condition specified in the permit. All costs associated with WCF removal and site restoration would be borne by the carrier.

Appropriate Siting Examples

The following are generally acceptable types of sites for proposed WCFs within Yellowstone National Park. Proponents are encouraged to submit proposals consistent with these criteria. However, the appropriateness of any site must be confirmed with park staff; a site matching one or more of these criteria could be unacceptable if it would result in a derogation of park resources.

(1) Sites using existing infrastructure or non-occupied non-historic structures including streetlight standards, utility buildings, bridges, water tanks, existing towers, smokestacks and chimneys, provided that the proposed location and structure treatment is consistent with requirements found in Yellowstone National Park Management Plans and other applicable plans and guidance, including *The Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* as set forth in Title 36 of the *Code of Federal Regulations*, Part 68 (36 CFR 68) and *The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (as set forth in 36 CFR 67). These standards are applicable because of potential impacts on other historic structures, cultural landscapes, or historic districts.

(2) Non-historic buildings with low use, including non-historic additions to historic buildings, including administrative buildings, utility structures, telephone switching facilities, and non-residential structures such as warehouses, equipment buildings or areas, garages, and service stations.

(3) Vacant or partially vacant non-historic buildings outside residential areas, especially non-occupied buildings that are not scheduled for near term occupancy, reuse, or demolition.

(4) Outdoor sites that A) would not disturb natural resources or require very minimal digging in previously undisturbed areas; B) are not readily visible or accessible to park visitors, tenants, or residents; C) are located away from viewsheds, residences, cultural resources; and recreational use areas; and D) have sufficient road, electrical, and telephone connections available nearby to service the site with minimal new construction.

(5) A historic structure will be considered for a WCF installation only when A) no other potentially acceptable sites are available; B) the lack of other potentially acceptable sites has been documented; C) installation of proposed WCF antennas, conduit, and related equipment is limited to non-historic (non-contributing) additions to the historic structure; and D) the proposed installation would fully comply with the regulatory requirements described in these guidelines. These requirements prohibit new penetrations in the walls, roof, or other features of a historic structure to accommodate WCF equipment or antennas.

(6) Sites for resource monitoring equipment would be provided only in locations that would not adversely affect natural or cultural resources. Monitoring stations for research and safety would only be allowed near a natural or cultural resource if essential to a project approved by the park's Research Review Committee.

(7) Monitoring equipment or radio repeater sites would be allowed in a recommended wilderness area only if the reasons for the placement are consistent with the Wilderness Act of 1964, NPS Director's Order 41 (*Wilderness Preservation and Management*), and the needed information could not be obtained in any area outside the recommended wilderness. Approval of such an installation would be consistent with the minimum requirement concept that determines whether the proposed action is appropriate or necessary for administration of the area as wilderness; does not pose a significant impact to wilderness resources and character; and the equipment used is the minimum needed.

Inappropriate Siting Examples

The following are examples of sites and WCFs that would be expected to result in a degradation of park values or potentially endanger park resources or visitor safety. Proponents are strongly encouraged not to submit applications for WCFs in these sites:

- (1) Any residential building or within 300 feet of residential areas in the park. This does not include fire lookouts or personal antennas (e.g., TV, WiFi)
- (2) Sites within plain view of sensitive natural or cultural areas, visitor centers, campgrounds, residential areas, trails, or park viewsheds.
- (3) Sites that would require special painting or lighting by statute or regulation for the facility to operate (e.g., Federal Aviation Administration requirements).
- (4) Sites where WCF construction or operation, including use of access roads, would have an adverse effect on a federally or state-listed endangered or threatened species.
- (5) Sites where WCF construction or operation occurs within the park's recommended wilderness, unless allowed through a minimum requirement analysis.
- (6) Outdoor sites on or near the top of an exposed ridge or hill, on a public trail, or within a creek/riparian corridor unless A) necessary to monitor wetlands, surface waters, or geothermal resources; or B) an existing structure or stealth technologies would be used to make the WCF unnoticed by the vast majority of visitors and the WCF would not otherwise degrade park resources or endanger visitors or wildlife.
- (7) Sites where WCF installation, construction, or operation, including regular access, would require construction of a new road, expansion of trails, or endanger or otherwise harm sensitive natural or cultural resources.
- (8) WCFs that are not designed for co-location or clustering with present or future WCFs if that would be feasible at the site. Clustering of antennas may minimize the overall height of tower, which in many cases is the preferred option.
- (9) WCFs whose design and installation are inconsistent with related planning documents, *The Secretary of the Interior's Standards for Rehabilitation*, or other plans, guidelines, or documents protecting park resources.
- (10) WCFs that are at a significant distance from electrical or telephone connections or existing roads for service access, such that construction to extend connections or access would result in a significant impact to park resources.
- (11) No WCF that would cause interference with park communications and emergency systems or other existing or proposed WCF in the park that could not be mitigated would be permitted.

Alternatives Considered and Dismissed

The following three alternatives were considered for project implementation, but were dismissed from further analysis for the reasons described.

- **Remove all existing cell phone service.** This alternative was considered to address comments received during the public scoping period of this plan. All cellular service throughout the park and its supporting infrastructure would be removed. During public scoping, a few members of

the public proposed this alternative as a potential solution. Alternative B removes all cellular service from the park with the exception of the Mammoth area. Because the community of Gardiner, Montana, receives cellular service from the same tower (Elk Plaza) that serves Mammoth Hot Springs, Wyoming, this alternative would remove a service in Gardiner that many residents there have come to rely upon. Therefore this alternative was removed from further consideration.

- **Reduce cell coverage to emergency calls only.** This alternative consisted of limiting cell phone service to 911 emergency calls only. Existing infrastructure would remain to allow the system to work. Cell phone service providers would likely not make a return on their investment, and would have to maintain the WCF for this purpose. Thus, maintaining a system for 911 only would not be economically feasible, and therefore this alternative was eliminated from further consideration.
- **Full build-out.** This alternative would have blanketed Yellowstone National Park with cell phone coverage. Coverage would have included all of the backcountry and recommended wilderness as well as all frontcountry, roads, and developed areas of the park. Power utility lines would be extended and constructed where none presently exist. This alternative would have required potentially hundreds of new sites and new roads and utilities for maintenance access and required power. Many of these sites would have been located in wilderness areas, which would not meet the objectives of this plan. Therefore, this alternative was eliminated from further consideration.
- **Redundant system from the west side of the park.** This would have been a component of an alternative that would have increased bandwidth (spectrum) coming into the park from the west side of the park. The system would likely have needed a mountain top site located within wilderness to construct a microwave site to relay the added bandwidth to Mount Washburn. As the site needed would have been in recommended wilderness, would need power, and likely road access, this component was dismissed and Bunsen Peak was recommended as a site to relay additional bandwidth from the north side of the park.

Actions/Equipment Outside the Scope of this Plan

The following actions or equipment are outside of the scope of this plan:

- **Devices that are connected through hard wiring.** Such as the NPS or Concessioner administrative computer networks or NPS Webcams connected to the Internet via hardwire. The park currently has three webcams operating within the park and located at Old Faithful, Mammoth, and Mt. Washburn. These webcams are used to allow the public to visit the park remotely via a computer with an Internet connection. Additionally, a webcam on Mt. Washburn is used by park fire management. These exist within the park, but will not be addressed in the plan as they are not considered a wireless technology, but rather an IT function. No webcams are proposed for installation in the backcountry areas for visitor use.
- **Mobile wireless devices.** Such as mobile GPS units, telemetry collars fitted on wildlife for research, or satellite phones. These are existing activities within the park, but are not addressed as part of this plan because they do not require WCF infrastructure.
- **Satellite Dishes.** Park employees are currently allowed to install personal satellite dishes on residences for access to satellite TV or the Internet. This is an existing allowed activity/function in the park, but is not part of this plan because they do not require WCF infrastructure.

Identification of the Environmentally Preferred Alternative

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

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative A, *No Action*, would not meet the second evaluation factor above, as it would have no upper limit on the amount of new facilities that could be built. This alternative would not improve the aesthetics of some facilities already constructed, and does not address some potential existing human health hazards. This alternative does not proactively allow the NPS to protect its resources as it reacts to proposals rather than planning for a desired condition, and evaluating the impacts collectively.

Alternative B, *Reduction in Wireless Services*, would decrease the public’s ability to report on park resource violations, and reduce their ability to make emergency calls about life and health safety issues. This alternative does not strike the best balance between population and resource use.

Alternative C, *Limited Increase in Wireless Services*, is the environmentally preferred alternative because it best addresses these six evaluation factors. Alternative C would allow a limited increase in wireless services and WCF infrastructure and would provide an appropriate level of wireless communications services that meets health and safety recommendations, while minimizing environmental impacts to the extent possible. This alternative would have no net gain of cell phone sites within the park (due to the relocation of the Bunsen Peak cell site to Elk Plaza, and the addition of a cell site at Lake), and would allow cell phone access in all major developed areas while keeping to a minimum any spillover of service into the backcountry areas of the park.

Alternative D, *Substantial Increase in Wireless Services*, would substantially increase the amount of wireless service and infrastructure within the park. Allowing for cellular coverage on the park roads would likely increase motor vehicle accidents, and would require additional resource impacts associated with new WCF infrastructure, trenching new power lines, and construction of pullouts for maintenance purposes. Visual quality in the park would decrease due to the visibility of towers that cannot be hidden.

No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Because it meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative C, *Limited Increase in Wireless Services*, is also recommended as the National Park Service preferred alternative. For the remainder of the document, Alternative C will be referred to as the preferred alternative.