



National Park Service
U.S. Department of the Interior
Grand Canyon National Park
Grand Canyon, Arizona

Grand Canyon National Park Train Operations



Environmental Assessment

June 2009

Train Operations at Grand Canyon National Park

Environmental Assessment

Summary

Grand Canyon National Park (GRCA) is evaluating train operations that begin in Williams, Arizona and end at South Rim, Grand Canyon. Currently GRCA does not limit the number of trains entering the park. However, typically no more than two round trips from Williams have been economically viable for the concessioner based on passenger numbers. Similarly, special use trains and events are not limited, but occur approximately 30 times per year.

This document assesses appropriate use of a commercially operated train to allow park visitors opportunity to experience Grand Canyon's South Rim using a historic rail line, passenger train travel and the historic train itself.

This Environmental Assessment (EA) evaluates two alternatives 1) a No Action Alternative and 2) an Action Alternative. The No Action Alternative continues current train operations. The Action Alternative continues current operations with a cap of three trains per day from Williams. The Action Alternative allows special use trains and work trains to continue, and includes several Depot improvements. It also provides additional interpretive opportunities including displaying a historic steam engine on the Depot tracks.

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet proposal objectives; 2) evaluates potential issues and impacts to GRCA resources and values; and 3) identifies mitigation measures to lessen degree or extent of impact. Resource topics analyzed in this document include soundscape, visitor experience, public health and safety, park operations, air quality and historic resources. No major impacts were identified in the analyses.

Public Comment

If you wish to comment on this Environmental Assessment, you may post comments online at <http://parkplanning.nps.gov/grca> or mail comments to: Steve Martin, Superintendent, Grand Canyon National Park, Attn: Train Operations, P.O. Box 129, Grand Canyon, AZ 86023.

This Environmental Assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. Although you can ask in your comment that your personal identifying information be withheld from public review, we cannot guarantee we will be able to do so.

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Chapter 1 PURPOSE AND NEED

Introduction

Theodore Roosevelt, by presidential proclamation, reserved land in the Grand Canyon of Arizona as Grand Canyon National Monument on January 11, 1908. On February 26, 1919, Congress dedicated and set apart Grand Canyon National Park “as a public park for the benefit and enjoyment of the people” (Grand Canyon National Park Establishment Act, 40 Stat 1175). Over the years the park has been enlarged and its boundaries revised, most recently on January 3, 1975, when Congress recognized “that the entire Grand Canyon, from the mouth of the Paria River to the Grand Wash Cliffs, including tributary side canyons and surrounding plateaus, is a natural feature of national and international significance” (Grand Canyon National Park Enlargement Act, Public Law 93-620).

The Grand Canyon was designated as a world heritage site on October 26, 1979, under the theme “natural landscape, eroded.” The site meets all four natural criteria for a world heritage site—geological processes, ecological and biological processes, exceptional natural beauty and conservation of biological diversity.

The purpose of this Environmental Assessment (EA) is to examine environmental impacts associated with current and future operations of the train in Grand Canyon National Park.

This Environmental Assessment was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and National Park Service (NPS) Director’s Order (DO-12 Conservation Planning, Environmental Impact Analysis, and Decision-Making).

Background

Passenger rail service from Williams, Arizona to Grand Canyon’s South Rim began in 1901 when a spur line was completed from the main rail line at Williams, Arizona to South Rim. Santa Fe Railway constructed the rail line, Depot and other supporting structures including hotels, restaurants, gift shops and housing between 1895 and 1905. The structures inside GRCA are now designated part of the Grand Canyon Village National Historic Landmark District.

Rail line popularity continued for decades, although by 1927 automobile-borne visitors outnumbered train passengers. Train travel remained lucrative for the Santa Fe Railroad until the 1960s when it declined precipitously; passenger trains ceased in 1967.

Passenger rail service was reinstated in 1989 under a concession permit issued under the authority of Public Law (P.L.) 89-249, the Concessions Policy Act of 1965. The current train operator serves more than 200,000 passengers per year. Train passengers embark from Williams, Arizona on daily trips using historic rail cars pulled by historic diesel or steam engines. On some occasions, the train operator provides a sunset limited trip which arrives at the park later in the day, and returns to Williams after sunset. In addition, other rail entities working with the train operator occasionally use the rails for park entry. The park reviews and approves such use on an individual basis.

Purpose and Need

The purpose of this action is to assess appropriate use of a commercially operated train to allow park visitors opportunity to experience South Rim using the historic rail access route, passenger train travel and the historic train itself.

The primary objectives for this planning effort are

- To provide opportunity for visitors to enter the park from Williams, Arizona without a private vehicle
- To provide opportunity for visitors to experience arrival at South Rim via historic means
- To support South Rim Transportation Plan
- To continue historic use of park resources, including the rail line and Depot
- To protect park natural and cultural resources
- To enhance visitor experience through interpretive and educational opportunities
- To assess train operations (specifically fuel alternatives) congestion near railroad infrastructure, safety and other issues.

Relationship to Other Plans and Policies

Grand Canyon National Park General Management Plan 1995

This project is consistent with the 1995 Grand Canyon National Park General Management Plan (GMP), which states

- (T)he park service will encourage alternatives to private automobile travel to Grand Canyon
- South Rim should be a model of excellence in planning and management. Alternative means of transportation—walking, biking or using convenient public transit—should be encouraged. To minimize new disturbance, necessary services and facilities should be provided in existing disturbed areas wherever possible, or outside the park
- The NPS will provide a diverse range of quality visitor experiences, as appropriate, based on GRCA's resources and values, compatible with protection of those resources and values
- The NPS will provide access appropriate and consistent with the character and nature of each landscape unit and desired visitor experience

Grand Canyon National Park South Rim Visitor Transportation Plan (SRVTP) 2007

A Finding of No Significant Impact (FONSI) for the SRVTP was signed in May 2007. It relates to the train operation by addressing the park's most pressing transportation issues by improving visitor transportation facilities and services, such as parking and shuttle buses, and making the most effective use of existing visitor facilities and services. Actions implemented in the SRVTP would serve to accommodate current and anticipated future levels of visitation to South Rim, enhance visitor experiences and protect park resources. Actions are affordable within available park recreation fee revenues and will be adaptively managed to respond to visitation changes through the life of the plan (approximately 2020). The SRVTP does not preclude other future transportation systems from being implemented, including those that may be required to meet substantial increases in visitation.

The SRVTP calls for improvements to passenger loading and unloading operations for the concessioner operating the train. Heavy congestion near Grand Canyon Depot when passengers disembark from the train causes safety risks and disrupts traffic flow. The plan calls for reduction of overall vehicle traffic through Grand Canyon Village in 2020 by 15 to 25% during peak periods.

According to the SRVTP, staging of trains and visitor circulation at the Depot will be improved. There are seven railroad tracks within the rail-yard adjacent to the Grand Canyon Depot. The concessioner operating the train currently uses four of these seven tracks to provide passenger service from Williams to Grand Canyon. The SRVTP stated that the park could allow, if needed, additional tracks (likely 5 and 6) to be opened in the future to accommodate additional trains, although additional environmental analysis could be required to assess effects of additional train service and more passengers. This Train Operations EA fulfills the requirement to reopen tracks 5 and 6 by assessing effects under Alternative B. Opening tracks 5 and 6 would displace a portion of parking spaces in parking Lot D because a parking area exists where the tracks are located (see Map 3). The SRVTP determined that track 7 is not needed and will be removed to construct a bus loading area.

Grand Canyon Line (EA 1984; FONSI 1985)

Rail service to South Rim was not used 1967 to 1989. Service began again in September 1989 after the Grand Canyon Line EA was completed. That EA's purpose was to re-establish rail passenger service between Williams, Arizona and the historic railroad Depot on South Rim.

Appropriate Use

Sections 1.4 and 1.5 of Management Policies (NPS 2006) direct the NPS to that authorized park uses do not cause impairment of, or unacceptable impacts on, park resources and values.

Section 8.1.2 of Management Policies (NPS 2006), Process for Determining Appropriate Uses, provides evaluation factors to determine appropriate use. Park use proposals are evaluated for

- Consistency with applicable laws, executive orders, regulations and policies
- Consistency with existing plans for public use and resource management
- Actual and potential effects on park resources and values
- Total NPS costs
- Whether the public interest will be served

The proposed project is considered an appropriate use as defined in NPS Management Policies (NPS 2006) because it is a form of enjoyment uniquely suited to GRCA's exceptional natural and cultural resources. Proposed actions are also evaluated for consistency with applicable regulatory measures, the park's 1995 GMP, actual and potential effects to park resources and values, total project cost and the public interest served. If unanticipated and unacceptable impacts are identified, the Superintendent will reevaluate purpose and need to further manage, limit or discontinue the use.

Alternatives under consideration meet the necessary and appropriate standard as described in P.L. 105-391. Under each alternative, as required, proposed use is consistent with applicable laws, executive orders, regulations and policies and with existing plans (outside the current effort) for public use and resource management. Actual and potential adverse effects on park resources and values are minimal to negligible, NPS costs are minimal and it is the determination of the NPS that public interest will be served through either alternative. Therefore, such use is considered appropriate.

Through this planning effort this activity is also found to be a necessary commercial service under P.L. 105-391 because it meets park planning objectives of providing a "step back in time" to a historic method early visitors used to visit Grand Canyon, thereby providing visitors an opportunity to engage with the area's cultural history. Additionally, train travel has potential to reduce automobile crowding and congestion in the Historic Village Area, because it provides alternative transportation to this heavily visited location.

By meeting these two important management objectives, without conflicting with many existing laws, executive orders, regulations and policies, this activity is found to be necessary and appropriate for visitor use and enjoyment.

Scoping

Scoping is a process to identify resources that may be affected by a project proposal, and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. Grand Canyon National Park conducted both internal scoping with NPS staff and external scoping with the public and interested/affected groups and agencies for this EA.

Internal scoping was conducted by an interdisciplinary team (IDT) of GRCA professionals. IDT members met September 16, 2008 to discuss project purpose and need, potential environmental impacts and possible mitigation measures. The IDT met on October 13, 2008 to further refine purpose and need and discuss alternatives. The IDT met again on December 4, 2008. Some IDT members met with representatives from Grand Canyon Railway, the current train concessioner, on December 11, 2008 to discuss current and potential future operations.

External scoping was initiated with scoping letter distribution to inform the public of the proposal, and to generate input on preparation of this Environmental Assessment. The scoping letter, dated September 4, 2008, was mailed to over 250 individuals, companies and groups throughout Arizona and the United States. In addition, a letter was mailed to various Federal and state agencies, affiliated American Indian tribes, local governments and local news organizations. Scoping information was also posted on the park's website and at <http://parkplanning.nps.gov/grca>.

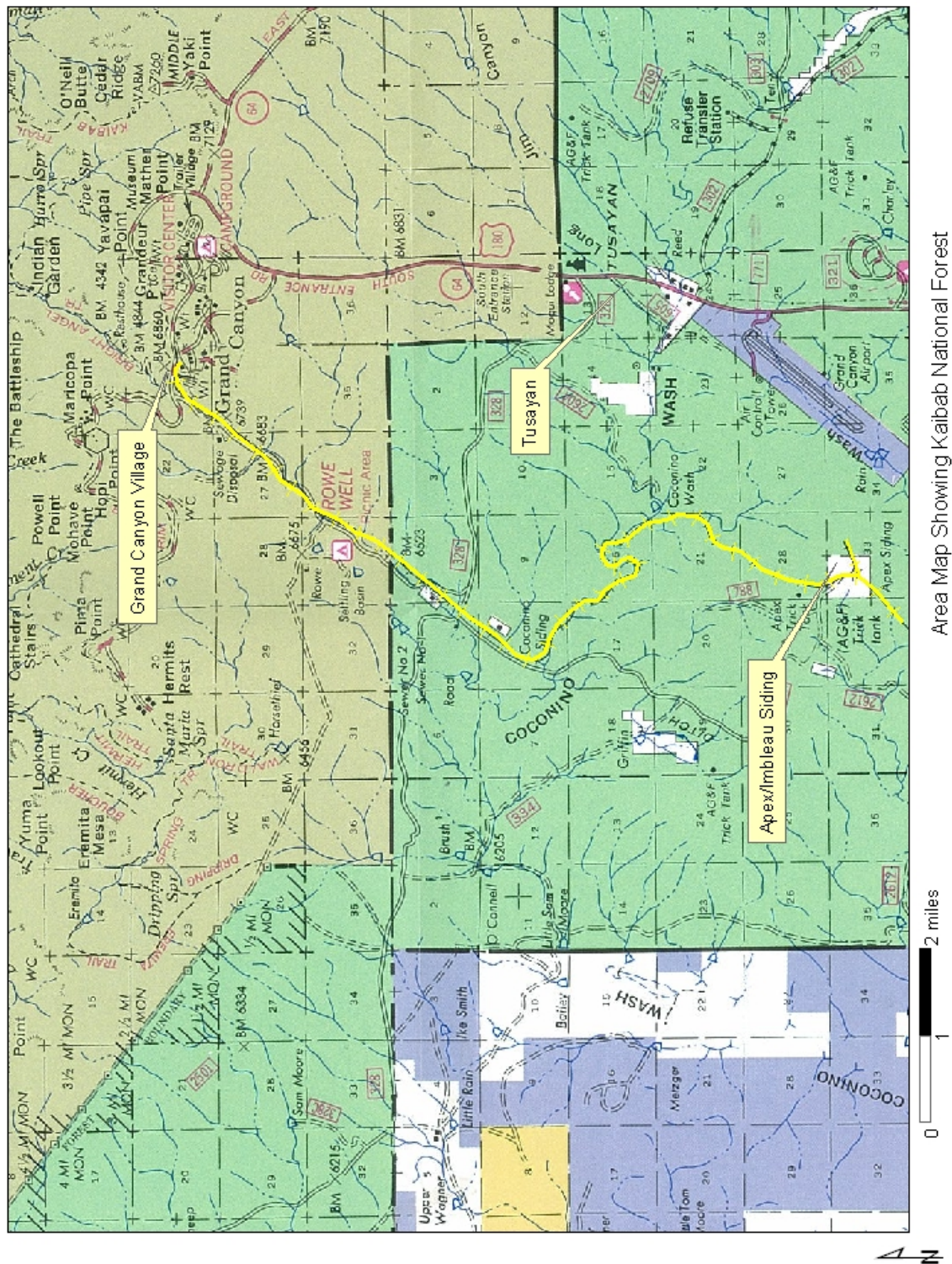
During the 30-day scoping period, 36 public responses were received. Many supported park train services continuation. Other comments questioned the evening/excursion train ride, the train ride's cost and noise levels. One Native American tribe responded with no concerns. All substantive comments were considered by the IDT and incorporated into the EA as appropriate. Internal, public and agency comments resulted in the following substantive statements

- The evening/excursion train does not reduce number of vehicles in the village since its passengers travel to South Rim by some other means than the train. Therefore, the excursion train does not contribute to the transportation benefit offered by the Williams to South Rim route
- The evening/excursion train does not contribute to preservation or enjoyment of resources for which Grand Canyon was set aside as a national park. It may not be in keeping with park goals
- Three daily trains from Williams are recommended if there is sufficient demand

Other concerns and comments included cost of riding the train and Depot safety concerns.

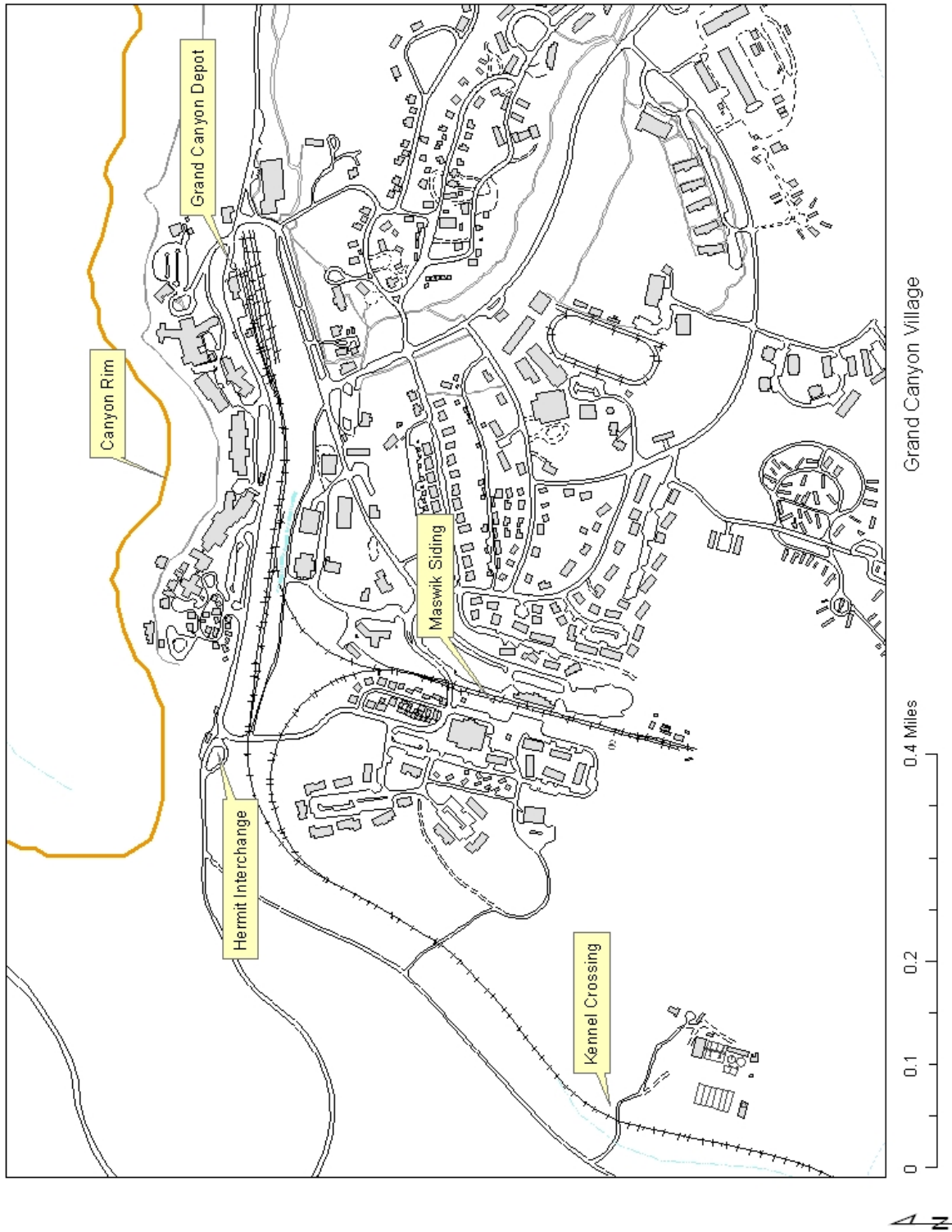
These issues were used to formulate alternatives and mitigation measures. Impact topics were then selected for detailed analysis based on substantive issues, applicable laws and regulations and park policies. A summary of impact topics and rationale for selection or dismissal are given in the following section.

Map 1 Area Map Showing Train Route

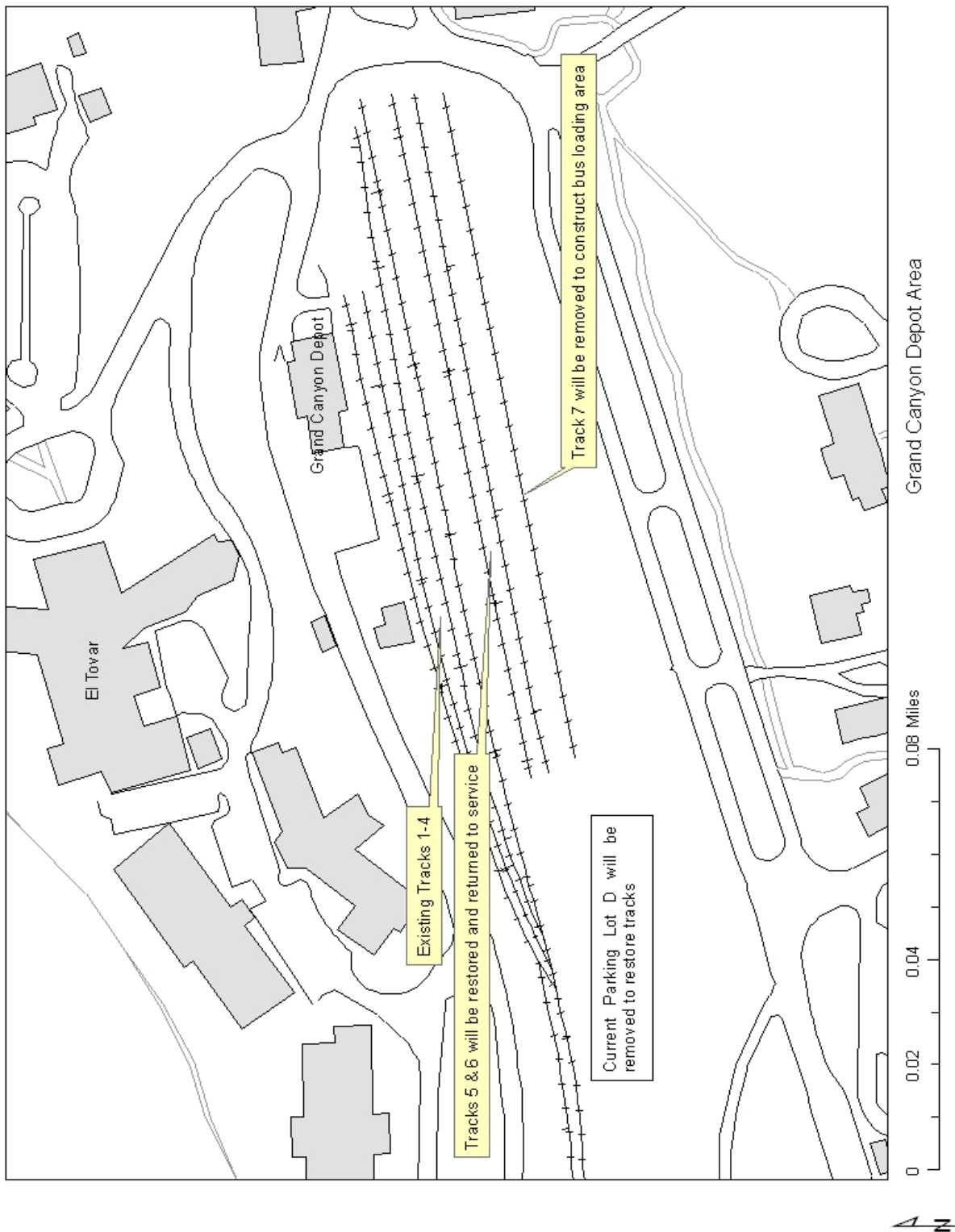


Area Map Showing Kaibab National Forest

Map 2 Area Map



Map 3 Historic Depot with Alternative B and SRVTP Proposed Changes



Impact Topics Retained for Further Analysis

Impact topics for this project were identified based on Federal laws, regulations and orders; Management Policies 2006; and NPS knowledge of Grand Canyon National Park resources. Impact topics carried forward for further analysis in this EA are

- Soundscape
- Visitor Experience
- Public Health and Safety
- Park Operations
- Air Quality
- Historic Resources

Impact Topics Dismissed From Further Analysis

Some impact topics have been dismissed from further consideration as listed below. During internal scoping, the park's IDT conducted a preliminary resources analysis to determine context, duration and intensity of effects the proposal may have on those resources. If the magnitude of effects was determined to be at the negligible or minor level, there is no potential for significant impact, and further impact analysis is unnecessary; therefore, the resource is dismissed as an impact topic. If, however, during internal scoping and further investigation, resource effects still remain unknown, or may be minor to moderate in intensity, and potential for significant impacts is likely, then analysis of that resource as an impact topic is carried forward.

For purposes of this section, an impact intensity of

- **negligible** is “at the lowest levels of detection, barely perceptible, and not measurable”
- **minor** is “measurable or perceptible, but is slight, localized, and would result in a limited alteration to a limited area”

Additional consideration of these topics is unlikely to provide useful information for comparison between the alternatives. The rationale for dismissing these specific topics is stated for each resource.

Special Status Species

The Endangered Species Act of 1973 requires examination of impacts on all Federally-listed threatened, endangered and candidate species. Section 7 of the Endangered Species Act requires all Federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure any action authorized, funded or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 Management Policies and Director's Order 77 (DO 77) Natural Resources Management Guidelines require the NPS examine impacts on Federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining and sensitive species (NPS 2006).

A Mexican Spotted Owl (MSO) Protected Activity Center (PAC) exists within a half mile of the Grand Canyon Depot. Train whistles may be disturbing to the birds. MSO PAC disturbance from the whistle will not occur after Federal Railroad Administration Quiet Zone implementation. Quiet Zone, explained in Chapter 3, Soundscape, will eliminate train whistles between the kennel crossing (just south of Grand Canyon Village) and Grand Canyon Depot.

Action Alternative impacts are expected to be minor or less on special status species. California condors and MSOs are the only species known to occur in or near the project area (Ward

2009). Any Depot construction will be completed when visitation is relatively low i.e., outside the MSO breeding season. Therefore, MSO impacts are not anticipated. Measures have been identified in this document to minimize California condor impacts. For these reasons, neither species will be affected.

No other special status species occur in the project area. The park's Section 7 Coordinator determined this project would have no effect on special status species (Ward 2009). Scoping letters were sent to USFWS and Arizona Game and Fish Department (AGFD) in September 2009. Neither agency responded with concerns regarding train operations or proposed Depot construction.

Wildlife

Proposed activities would not involve disturbance to vegetative communities or wildlife habitat. Noise disturbance will occur, but is not expected to have more than minor impacts on wildlife.

All daily trains would leave the Depot by 4:00 p.m. before wildlife becomes active. Special use trains that leave the Depot in evening hours would have more potential to encounter wildlife. Noise disturbance from the train would include rumbling on the tracks and the whistle and could change the way species use the area along the tracks. No sensitive nesting, fawning or calving areas are documented in the project vicinity, but it is possible adverse impacts could result. These impacts are considered minor due to the concentration of activities along existing disturbance corridors and availability of similar habitats nearby.

Potential exists for the train to directly collide with various wildlife species; however, no known collisions have occurred since the train began running. The rail lines are Class C, meaning trains cannot travel more than 35 miles per hour. Because this is a slow speed train, animals may have time to move away from the tracks.

Special use and work trains traveling later in the day may cause additional disturbance to grazing elk and deer populations because these species are more active at dawn and dusk. These impacts would be adverse minor long term.

Direct impacts to wildlife include noise disturbance and collision; however, these impacts would be minor or less short term.

Therefore, general wildlife populations were dismissed from further analysis.

Topography, Geology, and Soils

According to Management Policies (NPS 2006), the NPS will preserve and protect geologic resources and features from the adverse effects of human activity, while allowing natural processes to continue). These policies also state the NPS will strive to understand and preserve park soil resources and to prevent, to the extent possible, unnatural erosion, physical removal or contamination of soil or its contamination of other resources.

Given that there are no significant topographic or geologic features in the project area, and that the area has been previously disturbed, the proposed actions would result in negligible temporary adverse effects to topography, geology and soils. Further, such minor or negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with Management Policies §1.4.7.1 (NPS 2006). Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Vegetation

According to Management Policies (NPS 2006), the NPS strives to maintain all components and processes of naturally evolving park ecosystems, including natural abundance, diversity and ecological integrity of plants. The train is considered a source of park exotic plant species. As part of routine maintenance, vegetation is removed near the tracks. The train concessioner will follow all guidelines in the Exotic Plant Management Plan Environmental Assessment (2009). The area around the Depot is ponderosa pine forest. The project area is a disturbed area and exotic species are present. Trenching required for ground power installation and reopening of tracks 5 and 6 will impact less than one acre of vegetation. Mitigation measures have been identified in this document to lessen any impacts to vegetation. No unacceptable impacts to vegetation would result. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Water Resources

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

The intermittent Bright Angel Wash runs alongside rail lines in the village area. Another small stream sourced from the wastewater treatment facility runs alongside the tracks starting near the road crossing that leads to the park kennel and waste water treatment plant (see Map 2). No new construction is proposed for this area, so no impact will occur. Water quality, water quantity and drinking water are not expected affected by the project. The proposed action would result in negligible effects to water resources. Further, such negligible impacts would not result in any unacceptable impacts; the proposed actions are consistent with Management Policies §1.4.7.1 (NPS 2006). Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Wetlands

For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Executive Order 11990 Protection of Wetlands requires Federal agencies to avoid, where possible, adversely impacting wetlands. Further, Clean Water Act §404 authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge or dredged or fill material or excavation within waters of the United States. NPS policies for wetlands as stated in Management Policies and Director's Order 77-1 Wetlands Protection strive to prevent wetland loss or degradation and preserve and enhance natural and beneficial values of wetlands. In accordance with DO 77-1, proposed actions that have potential to adversely impact wetlands must be addressed in a statement of findings for wetlands.

No construction will occur near wetlands; therefore, a statement of findings for wetlands will not be prepared. Further, there would be no unacceptable impacts to wetlands; proposed actions

are consistent with Management Policies § 1.4.7.1. Since there would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

Floodplains

Executive Order 11988 Floodplain Management requires all Federal agencies to avoid construction in the 100-year floodplain unless no other practicable alternative exists. Under Management Policies and Director's Order 77-2 Floodplain Management the NPS will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director's Order 77-2, certain construction in a 100-year floodplain requires preparation of a statement of findings for floodplains.

The rail lines and Depot are not within a 100-year floodplain; therefore, a statement of findings for floodplains will not be prepared. Further, there would be no unacceptable impacts to floodplains; proposed actions are consistent with Management Policies §1.4.7.1. Because there are no floodplains in the project area, and thus would be no unacceptable impacts, this topic is dismissed from further analysis in this document.

Archeological and Ethnographic Resources

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

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

In addition to the National Historic Preservation Act and Management Policies, Director's Order 28-A Archeology affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation and protection of archeological resources inside NPS units. As one of the principal stewards of America's heritage, the NPS is charged with preservation of commemorative, educational, scientific and traditional cultural values of archeological resources for the benefit and enjoyment of present and future generations. Archeological resources are nonrenewable and irreplaceable, so it is important that all management decisions and activities throughout the national park system reflect a commitment to archeological resource conservation as elements of our national heritage.

The Depot area was included in a 2003 partial parkwide inventory. The survey of the project area did not identify any archeological resources. No construction in previously undisturbed areas is proposed. Returning tracks 5 and 6 to service will require removal of gravel currently covering part of the tracks. Railroad ties would be replaced and general repairs made. Appropriate steps would be taken to protect any archeological resources inadvertently discovered during construction. Because the project will not disturb any known archeological sites, the project is not expected to affect archeological resources.

Letters to all affiliated American Indian tribes were sent in November 2008. Two tribes responded there were no ethnographic concerns with the proposed project area. Further, such negligible impacts would not result in any unacceptable impacts; proposed actions are consistent with Management Policies §1.4.7.1. Because these effects are minor or less in

degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Cultural Landscapes

According to Director's Order 28 Cultural Resource Management, a cultural landscape is a reflection of human adaptation and use of natural resources, and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation and the types of structures built. No construction outside of previously undisturbed sites is anticipated in this project. Components of the project being considered include returning tracks 5 and 6 to use and installing ground power; both actions are described under Alternative B in Chapter 2. These projects would have limited ground disturbance and trenching and would not create any unacceptable impacts. The proposed actions are consistent with Management Policies §1.4.7.1.

The project area is in Grand Canyon Village National Historic Landmark District. A Cultural Landscape Report (CLR) for this district was completed in 2004 and identified the most notable cultural landscape features associated with the railroad to be Bright Angel Wash, the Depot, rail lines and stone walls (NPS 2004). The Depot building itself is a National Historic Landmark. Treatment recommendations in the CLR include retaining overall patterns of spatial organization and circulation, minimizing new construction, using previously disturbed locations for construction and retaining all contributing buildings and structures. Both alternatives evaluated in this EA would fulfill these recommendations.

Most of the cultural landscape's historic features owe their existence to the building campaigns of the Santa Fe Railroad and its associated company, Fred Harvey Hospitality. Prior to railroad arrival, the primary South Rim developed visitor area was Grandview Point. The cultural landscape's historic components were all designed infrastructure for accommodation of rail passengers delivered to the canyon rim by the railroad. Since the proposed alternatives continue this established historic use, there is no impact to the cultural landscape from continued or increased rail operations. Construction activities, including restorations of tracks and installation of ground power would have a minor or less impact to the cultural landscape. Therefore, this impact topic is dismissed from further analysis.

Museum Collections

According to Director's Order 24 Museum Collections, the NPS requires consideration of impacts on museum collections (historic artifacts, natural specimens and archival and manuscript material), and provides further policy guidance, standards, and requirements for preserving, protecting, documenting and providing access to, and use of, NPS museum collections. The proposed actions are consistent with Management Policies §1.4.7.1. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Lightscape Management

In accordance with Management Policies, the NPS strives to preserve natural ambient lightscapes; natural resources and values that exist in absence of human-caused light (NPS 2006). No new lighting is proposed. If changes in lighting become necessary, all new or changed lighting will be consistent with the park lighting policy. Because these effects are minor or less in degree and would not result in any unacceptable impacts, this topic is dismissed from further analysis in this document.

Socioeconomics

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. Implementation of the proposed action could provide a negligible beneficial impact to economies of Williams, due to minimal increases in employment opportunities and revenues for local businesses and governments generated from additional trains. Any increase in workforce and revenue, however, would be minor. Because impacts to the socioeconomic environment would be minor, this topic is dismissed.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires Federal agencies to consider adverse effects to prime and unique farmlands that would result in conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and is defined as soil that particularly produces general crops such as common foods, forage, fiber and oil seed; unique farmland produces specialty crops such as fruits, vegetables and nuts. According to the NRCS, the project area does not contain prime or unique farmlands (Camp 2002). Because there would be no effects on prime and unique farmlands, this topic is dismissed from further analysis in this document.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by the Department of the Interior agencies be explicitly addressed in environmental documents. The Federal Indian trust responsibility is the legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources and treaty rights, and it represents a duty to carry out mandates of Federal law with respect to American Indian and Alaska Native tribes. Grand Canyon National Park does not have any Indian trust resources. Therefore, this topic was dismissed from further analysis.

Environmental Justice

Executive Order 12898 General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires all Federal agencies incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Because there would be no disproportionate effects, this topic is dismissed from further analysis in this document.

Wilderness

Rail lines do not run through or adjacent to wilderness or proposed wilderness. Currently train whistles may be audible from some wilderness areas. Train whistle elimination through a Federal Railroad Administration Quiet Zone exemption may improve wilderness character, but the exemption is a separate, previously initiated, ongoing project and does not influence this EA. The proposed action would have no impact to wilderness or wilderness character; therefore, this topic is dismissed from further evaluation.

CHAPTER 2

ALTERNATIVES

During the fall 2008 an IDT of NPS employees met on three occasions to discuss this project and develop alternatives. These meetings resulted in project objective definitions as described in Purpose and Need, and a list of alternatives that could potentially meet these objectives. A total of four Action Alternatives and the No Action Alternative were originally identified for this project. Of these, three Action Alternatives were dismissed from further consideration for various reasons as described later in this chapter. One Action Alternative and the No Action Alternative are carried forward for further evaluation in this Environmental Assessment. A summary table comparing alternative components is presented at the end of this chapter.

Approximately 6% of South Rim visitors, or 200,000 visitors per year, currently arrive via passenger train. If one assumes approximately three passengers represent one private vehicle, and that passengers who arrive via train do not enter the park later by personal vehicle, this represents elimination of approximately 67,000 vehicles per year, or about 180 vehicles per day, with attendant air pollution, noise and contribution to crowding and congestion.

Alternatives Carried Forward

Alternative A No Action

Under this alternative, the train concessioner would continue current operations which typically consist of one to two trains from Williams per day; special use trains and events; and work trains. There are no limits on daily trains or special use trains and events under the current authorization.

- **Daily Trains** Currently, the park does not limit the number of trains arriving at the Depot
- **Special Use Trains and Events** The train concessioner requests approximately 30 special trains and events annually in addition to daily trains. Special use trains are passenger trains that run outside the daily train schedule and are run by either the train concessioner or another entity as permitted through the concessioner. Special events would include other activities on the railroad tracks such as hand cars. Under this alternative, special use trains and events would continue without a cap on number allowed each year
- **Work Trains** Work trains run as needed to maintain rails and crossings. Currently work trains use tracks inside the park approximately two times per week. Work trains use would continue under this alternative

Alternative B Cap Train Use (Preferred Alternative)

This alternative caps daily trains at three. Work trains and special use trains would continue in addition to daily trains. Special use trains and events would be capped at 30 annually. However, additional special use trains could be considered pending assessment of impacts to residents, visitors and wildlife.

- **Cap of Three Daily Trains from Williams** Up to three trains would arrive at the Grand Canyon Depot each day as estimated in Table 1.

The train operator would notify the park when a third train becomes feasible, and the park would review and approve resultant schedule changes.

Table 1 Estimated Train Schedule

Daily Train	Arrive at GC Depot	Depart GC Depot
1	10:45am	1:30pm
2	11:15am	3:30pm
3	12:45pm	4:00pm

- **Installation of Ground Power** The concessioner operating the train would install ground power to run power cars while trains are parked at the Depot. This would involve some trenching and utility installation. Once installed, power cars would no longer idle at the Depot. Power cars are located behind the engine and supply power to passenger cars to maintain climate control while parked
- **Opening Tracks 5 and 6** Current track configuration can accommodate three trains at once. However, opening tracks 5 and 6 would be considered to enhance safety and aid train operations in the Grand Canyon Depot area. GRCA would work with the train concessioner to approve opening of these tracks. Currently tracks 5 and 6 are partially covered with gravel and used for parking private vehicles in Lot D (see Map 3). Opening these tracks for use would include gravel removal and repairs and replacement of ties and rails.
- **Special Use Trains and Events** In addition to daily trains described above, special use trains would be capped at 30 per year. The concessioner could allow up to 30 special use trains and events per year, including those operated by the concessioner and other entities.

If the train concessioner would like to request more than 30 trains per year, the following actions may be considered

- Informal visitor surveys to determine additional train impact on visitor experience
 - Wildlife Biologist riding trains to observe wildlife/train interactions
 - Informal resident survey to determine additional train impacts on resident experience
- **Work Trains** Work trains run approximately two times per week to maintain rails and crossings in and outside the park. Work trains would continue under this alternative
- **Historic Steam Engine Display** An historic steam engine could be displayed on track 1 at the Grand Canyon Depot. Track 1 is not typically used by trains and would allow enough room to display the engine without blocking views of the Grand Canyon Depot. The steam engine would be kept operational and returned to Williams for servicing as needed.
- **Other Interpretive Opportunities** The train concessioner would work with the park's Interpretation staff to identify other opportunities for visitors to experience the train. This may include tours of the train or Depot, improved interpretive programs on the train and interpretive displays in and around the Depot.

Mitigation Measures

Mitigation measures listed below are considered part of the preferred alternative and will be followed during project implementation. These actions were developed to lessen potential for adverse impacts from implementing the preferred alternative, and have proven effective in reducing environmental impacts on previous projects. The Project Manager from Grand Canyon's Concessions Division is responsible for making sure mitigation measures are followed and are part of any contracts that apply to projects proposed in this Environmental Assessment.

Contractor Orientation Contractors working in the park will be provided instructions regarding proper conduct. These instructions will be provided both in writing and verbally at a pre-construction meeting coordinated by the Project Manager. Orientation and instructions will include, but not be limited to

- Wildlife should not be approached or fed
- Collecting any park resources, including plants, animals and historic or prehistoric materials, is prohibited
- Contractor must have a safety, vehicle fuel-spill and leakage policies
- Other environmental concerns and requirements discussed elsewhere in this EA will be addressed, including relevant mitigation measures listed below

Limitation of Area Affected The following mitigation measures will be implemented to minimize area affected by construction activities and potential for adverse impacts due to connected actions

- Staging areas for construction equipment and material storage will be located either in previously disturbed areas near project sites or other disturbed areas that best meet project needs and minimize new ground disturbance. All staging areas will be returned to pre-construction conditions or better once construction is complete. Standards and methods for determining when standards are met will be developed in consultation with the park Vegetation Program Manager
- Construction zones will be fenced with construction tape, snow fencing or similar material wherever appropriate. Fencing will define the construction zone and confine activity to the minimum construction area required. All protection measures will be clearly stated in construction specifications, and workers will be instructed to avoid conducting activities beyond the construction zone as defined by fencing

Soil Erosion Even though it is dismissed from impact topics, park standard operating practices are applied to all projects. To minimize soil erosion, the following mitigation measures will be incorporated into the Action Alternative

- Standard erosion control measures such as silt fences, sand bags or equivalent control methods will be used to minimize potential soil erosion
- Grading and trenching operations will be by backhoe, track hoe, Pionjar, ditch digger and/or trencher, with excavated material side-cast for storage. Any trenching restoration operations will follow park-approved guidelines. Compacted soils will be scarified, and original contours reestablished.

Vegetation Project Manager will work with concessioner, contractor and park staff to minimize vegetation impacts, prevent exotic vegetation introduction and minimize noxious weed spread; the following mitigation measures will be incorporated into the Action Alternative

- All construction equipment that will leave the road (e.g. bulldozers and backhoes) will be pressure-washed prior to entering the park. The vehicle-washing location selected will be park-approved
- Staging area locations for construction equipment will be park-approved. If determined by Vegetation Program Manager to be necessary, exotic vegetation will be treated prior to beginning of construction
- Vehicle parking will be limited to existing roads or the staging area
- Any fill, rock or additional topsoil needed will be obtained from a park-approved source. Topsoil from the project area will be retained whenever feasible
- All areas disturbed by construction will be revegetated using site-adapted native seed and/or plants
- Exotic species encroachment and distribution will be monitored two to three years following construction completion
- Revegetation efforts will be initiated as soon as possible following construction to minimize competition between native and exotic species
- Existing area vegetation will be maintained and enhanced to the extent practical
- The concessioner will follow the park Exotic Plant Management Plan when treating vegetation on and near rail lines
- Integrated Pest Management Treatment of non-native vegetation on tracks will be conducted according to NPS Management Policies and the park Exotic Plant Management Plan

Special Status Species The park employs standard procedures for any park activity—not just construction projects. To protect any unknown or undiscovered threatened, endangered or special status species, the construction contract will include provisions for discovery of such. Provisions require cessation of construction activities until park staff evaluated impact, and will allow contract modification for any measures determined necessary to protect the discovery. Mitigation measures for known special status species are

California Condor

- The train operator will notify park staff of any condors landing or frequenting areas along tracks or near the Depot. The train operator will instruct passengers and staff to avoid interaction with condors. The train operator will maintained its assigned area in a clean condition to avoid creating attractions for condors
- Prior to construction start, the park will contact personnel monitoring California condor locations and movement in the park to determine locations and status of condors in or near the project area
- If a condor lands at the construction site, construction will cease until it leaves on its own or until permitted personnel employ techniques resulting in the individual condor leaving the area
- Construction workers and supervisors will be instructed to avoid interaction with condors and to contact park dispatch immediately if a condor lands at a construction site
- The construction site will be cleaned up at the end of each day work is conducted (i.e., trash disposed of, scrap materials picked up) to minimize likelihood of condors visiting the site. Park condor staff will complete a site visit to ensure adequate clean-up measures are taken

- To prevent water contamination and potential condor poisoning, the park-approved vehicle fluid-leakage and spill plan will be adhered to for this project. This plan will be reviewed by the park Wildlife Biologist to ensure project adequate condor protection
- If condor nesting activity is known within 0.5 miles of the project area, light and heavy construction in the project area may be restricted during active nesting season, if viable nests persist. Active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the park Wildlife Biologist and USFWS

Soundscapes To minimize construction impacts on soundscapes, the following mitigation measures will be incorporated into the Action Alternative

- As time and funding allow, information regarding project implementation and other foreseeable future projects will be shared with the public through park publications and other means (this measure is repeated in the Visitor Experience topic in this section)
- To reduce noise, construction equipment will not be left idling any longer than is necessary for safety and mechanical reasons, and no construction will occur at night
- Regular train operations will be restricted to daylight hours to maintain maximum quiet during evening hours
- The train operator will be required through its permit to embrace quiet technologies as they become feasible, given its use of historic engines and cars

Cultural Resources The park employs standard procedures for all park activities not unique to construction projects. To minimize construction impacts on cultural resources, the following mitigation measures will be incorporated into the Action Alternative

- The Railway Depot and its environs are part of the Grand Canyon Village National Historic Landmark District. The train operator will be required by the NPS, through its permit, to follow appropriate maintenance and housekeeping procedures to care for this important historic and cultural property
- If previously unknown archeological resources are discovered during the project, a park archeologist will be contacted immediately. All work in the discovery's immediate vicinity will be halted until resources can be identified, documented, and an appropriate mitigation strategy developed, if necessary; in accordance with stipulations of the 1995 Programmatic Agreement among the NPS, Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the GRCA GMP/EIS
- Any excavation needed for project implementation (e.g. burying utilities) may require an archaeological monitor
- All workers will be informed of penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers will also be informed of correct procedures if previously unknown resources were uncovered during construction activities
- Areas selected for equipment and materials staging should be in existing disturbed areas or existing paved overlooks where no potential for archeological resource disturbance exists. If sites selected for these activities change during later design phases for alternative implementation, additional archeological surveys will be conducted
- Disturbance to cultural resources and features associated with the cultural landscape in the project area will be minimized

- The park will follow the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, and Director's Order 28.

Visitor Experience The following mitigation measures will be incorporated into the Action Alternative to minimize impacts on visitor experience

- The park will work with the train operator to minimize any issues of crowding or congestion during train boarding and de-boarding. Such mitigation may consist of the train operator providing crossing guards and traffic control at the Depot
- Unless otherwise approved by the park, operation of heavy construction equipment will be restricted to dawn to dusk, year-round
- As time and funding allow, information regarding project implementation and other foreseeable future projects will be shared with the public through appropriate means during construction periods. This may be an informational brochure or flyer distributed at the gate and sent to those with reservations at park facilities, postings on the park website, press releases, and/or other methods. The purpose will be to minimize potential for negative impacts to visitor experience during project implementation and other planned projects during the same construction season

Park Operations and Safety The following mitigation measures will be incorporated into the Action Alternative to minimize impacts on park operations and minimize safety risks to employees and visitors

- The NPS will notify its employees, concessioners, visitors and residents of project implementation, road delays and/or road closures, as appropriate
- The NPS will provide guidance to the train operator through its authorization to promote safe operations and ensure smooth park operations

Air Quality Air quality impacts of the Action Alternative are expected to be temporary and localized. To minimize these impacts, the following actions will be taken

- Through its authorization, the train operator will be required to use best technologies as they become available to minimize impacts to air quality from train operations, recognizing that use of historic engines and train cars are an important part of this activity
- To reduce entrainment of fine particles from hauling material, sufficient freeboard will be maintained, and loose material loads (aggregate, soils, etc.) will be tarped
- To reduce tailpipe emissions, construction equipment will not be left idling any longer than necessary for safety and mechanical reasons
- To reduce short-term construction dust, water will be applied to problem areas. Equipment will be limited to the fenced project area to minimize soil disturbance and consequent dust generation

Alternatives Considered and Dismissed

The following three alternatives were considered for project implementation, but ultimately dismissed from further analysis. Reasons for their dismissal are provided in the following alternative descriptions

Cap Train Use and Allow Excursion Train This alternative would cap daily trains arriving from Williams to three and allow operation of an excursion train. The excursion train would depart from the South Rim Depot, travel outside the park to the Apex/Imbleau siding in the Kaibab National Forest, and return to South Rim Depot. The excursion train was proposed to operate once daily May through September and would run in late afternoon or early evening.

This alternative was considered in response to a request from the train concessioner to provide such an excursion train from the Depot, based on the concessioner's belief that park visitors were interested in the historic train and would enjoy an opportunity for a brief outing. The park temporarily approved this activity in summer 2008, using a categorical exclusion which allows for a temporary service pending longer-term planning. This alternative has been dismissed from further evaluation based on its conflict with the project's purpose and need.

Specifically, the excursion train does not represent a historic use of rail lines and Depot since train services were historically used to transport visitors the entire distance from Williams along the historic rail corridor to the canyon rim. In addition, the excursion train would not offer an alternate mode of transportation to the park, and would not reduce the amount of traffic and parking congestion in Grand Canyon Village, because the excursion train would leave and return to the South Rim Depot. For these reasons, this alternative was dismissed from further consideration.

No Trains The alternative, removing all trains from GRCA, was considered and dismissed because train operations are a desired and historic park use. This alternative was dismissed because it did not meet the project's purpose and need. Specifically, this alternative did not meet project objectives to provide transportation to the park other than private vehicles, provide visitors opportunity to experience the train, and continue use of the park's historic resources. For these reasons, this alternative was dismissed from further consideration.

Using Rail Line For Mass Transit Type Transportation This alternative consisted of constructing new lines from Williams, Arizona to South Rim for faster train service. This proposal is outside of the scope of this project and would not meet the project objective to use historic rail lines. In addition, this alternative is not feasible at this time. For these reasons, this alternative was dismissed from further consideration.

Alternative Summaries

Table 2 summarizes major components of Alternatives A and B and compares the ability of these alternatives to meet Chapter 1's project objectives. As shown in Table 2, Alternative B meets each of the objectives identified for this project, while the No Action Alternative does not address all objectives.

Table 2 Alternatives Summary and Project Objectives

Alternative	Meets Project Objective
Alternative A No Action Train service continues under current conditions	Alternative A does not meet the project objectives to enhance visitor experience, improve safety and protect resources
Alternative B Preferred Alternative Cap Train Use	Alternative B meets all of the project's objectives.

Table 3 Environmental Impact Summary by Alternative

	Alternative A No Action	Alternative B Cap Train Use Preferred
Soundscape	Minor short-term adverse impacts from train whistling, idling and rumbling; bus idling; and sound of people disembarking the train. Beneficial minor long-term impacts from decreased private vehicle traffic	Impacts similar to Alternative A. Additional adverse impacts during construction related to ground power installation and track 5 and 6 restoration. Beneficial impacts from decreased private vehicle traffic and ground power installation minor long term
Visitor Experience	Moderate beneficial long-term impacts as visitors would continue to experience the train as a passenger or observer, and fewer passenger vehicles in South Rim Village. Some minor adverse short-term impacts from congestion and crowding when trains arrive at South Rim	Moderate beneficial impacts slightly increased from Alternative A from ground power installation, increased interpretive opportunities including display of historic steam engine and increased opportunities to ride the train. Short-term adverse minor impacts due to construction, and long-term adverse minor impacts due to congestion and crowding

	Alternative A No Action	Alternative B Cap Train Use Preferred
Public Health and Safety	Minor adverse long-term effects on public health and safety would result from pedestrian congestion and crossing in the Depot area and concerns at park railroad crossings. Beneficial impacts from train whistle, gates, flashing lights and crossing guards would be minor long term	Impacts same as described for Alternative A. Some additional beneficial impacts would result from restoration of tracks 5 and 6 and would be minor long term
Park Operations	Negligible adverse long-term impacts from administration of concessions contract. Minor long-term beneficial impacts from visitor transport into the park and maintenance of rail line and train Depot	Similar impacts to Alternative A. Slightly more adverse long-term impacts would result from safety concerns near the Depot with three daily trains. Beneficial impacts would slightly increase based on more visitors riding the train and decreased passenger vehicles in the park
Air Quality	Minor adverse long-term from train idling at South Rim Depot. Beneficial impacts from reduction in passenger vehicles on South Rim would be long term negligible	Moderate beneficial long-term impacts from reduction of train idling at Depot and potential to further decrease number of passenger cars entering the park. Some short-term adverse negligible impacts during construction activities
Historic Resources	Beneficial long-term moderate impacts due to maintenance of the historic train Depot, rail lines and crossings	Increased moderate beneficial long-term impacts due to maintenance of historic train Depot, rail lines and crossings; display and interpretation of historic steam engine; and restoration of tracks 5 and 6

Identification of Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying criteria suggested in the National Environmental Policy Act of 1969 which guides the Council on Environmental Quality. The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA §101:

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

Through the process of internal and public scoping, the environmentally preferred alternative is Alternative B. Alternative B best meets the purpose and need for action and best addresses overall park service objectives and evaluation factors while minimizing impacts to resources. While Alternative A would meet the intent of many project objectives, it does nothing to improve park conditions. Alternative B satisfies the objectives and provides additional opportunities for visitors to experience the train by providing a historic steam engine on display at the Depot. It also improves air quality through ground power installation and improves public health and safety by allowing restoration of tracks 5 and 6.

The preferred alternative best achieves the balance between resource use and visitor experience as specifically identified in numbers 3 and 4 above, while also minimizing new resource impacts as in numbers 2, 4, and 5 above.

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes present conditions (i.e., affected environment) and analyzes potential environmental consequences, or impacts, that would occur as a result of proposed project implementation. Topics analyzed in this chapter include soundscape, visitor use and experience, public health and safety, park operations, air quality, wildlife and historic resources. Direct, indirect and cumulative effects, as well as appropriate use, mitigation measures and impairment are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration and intensity. General definitions are as follows, while more specific impact thresholds are given for each resource at the beginning of each resource section.

- **Type** describes the impact classification as beneficial or adverse, direct or indirect
 - *Beneficial* A positive change in resource condition or appearance or a change that moves the resource toward a desired condition
 - *Adverse* A change that moves the resource away from a desired condition or detracts from its appearance or condition
 - *Direct* An effect caused by an action and occurs in the same time and place
 - *Indirect* An effect caused by an action but later in time or farther removed in distance, but still reasonably foreseeable.
- **Context** describes the area or location in which the impact will occur. Are effects site specific, local, regional or even broader?
- **Duration** describes length of time an effect will occur, either short or long term
 - *Short-term* impacts generally last only during the project period, and resources resume pre-project conditions following completion
 - *Long-term* impacts last beyond the project period, and resources may not resume pre-project conditions for a longer period of time following completion
- **Intensity** describes an impact's degree, level or strength. For this analysis, intensity is categorized into negligible, minor, moderate and major. Because intensity definitions vary by resource topic, intensity definitions are provided separately for each impact topic analyzed in this Environmental Assessment.

Cumulative Effects

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

Cumulative impacts were determined by combining preferred alternative impacts with other past, present and reasonably foreseeable future actions. Therefore, it was necessary to identify

other ongoing or reasonably foreseeable future GRCA projects and, if applicable, the surrounding region. The following projects were used in analysis.

Recently Completed and In-Progress Projects and Plans

Construction Related Projects and Plans

Desert View Improvements Activities include Desert View Drive realignment to move traffic away from the rim; new parking lot and shuttle bus transit facility construction; additional visitor orientation services facility installation; of trails, utility, picnic and other visitor facility construction; and Entrance Road and portions of Desert View Drive rehabilitation.

Parkwide Restrooms This project, Construct, Rehabilitate and Repair Restrooms Parkwide, was initiated to address a parkwide need. Many projects identified in the EA have been completed with an overall beneficial visitor impact.

Hermit Road Rehabilitation Rehabilitation on seven-mile Hermit Road, located on South Rim between Grand Canyon Village and Hermits Rest, is complete. Actions included widening and resurfacing the road; improving existing trails, overlooks and parking areas; and constructing a multi-modal greenway trail.

South Entrance Road Improvements South Entrance Road (Highway 64) improvements between Tusayan and the entrance station are complete. The project included construction of two additional northbound lanes and an independent bypass lane available to transit vehicles, employees, residents and other users as determined by the park.

South Rim Visitor Transportation Plan The purpose of South Rim Visitor Transportation Plan is to provide a transportation system that addresses the park's most pressing transportation issues through the year 2020. The plan accommodates current and anticipated levels of South Rim visitation, facilitates enhanced visitor experiences and protects park resources. The preferred alternative includes constructing new parking areas near the Visitor Center (formerly Canyon View Information Plaza); expanded shuttle bus service from Tusayan; expanded shuttle bus transit in the Village and to Hermits Rest; and improvements at South Entrance Station to reduce wait times such as additional vehicle lanes and tour bus parking/management.

Other Plans and Management Activities

Quiet Zone/Whistle Exemption from Federal Railroad Administration The Grand Canyon Safety Office applied for a whistle exemption/quiet zone from the Federal Railroad Administration for the area from the kennel crossing (see Map 2) to the Depot. The park is continuing to work toward this exemption.

The Federal Railroad Administration quiet zone authorization will eliminate train whistles from the kennel crossing into the village. Currently the train is heard 6% or less during daytime in Grand Canyon Village (and the surrounding area), but the whistle is responsible for some of the loudest sounds (over 90 A-weighted decibels (dBA) in GRCA. The train whistle is sixteen times louder than the daytime ambient sound level, and thirty-two times louder than the nighttime ambient sound level in the railroad Depot area. To help mitigate these loud sounds in the village, the train whistle would be blown outside the park boundary or within the park boundary, but before the train reaches the village. This would allow visitors to hear train sounds, but at much lower levels. Restricting regular train operations to daytime hours would remove train sound impacts on nighttime ambient sound levels and reduce the amount of time residents and

visitors hear trains evenings. Future acoustic data collection of train operations would be beneficial to monitoring train noise and its effects on the village and surrounding areas (Levy 2008).

Fire Management Activities These include different fire management activities such as prescribed burns, wildland fire-use fires for resource benefit, manual and mechanical thinning and suppression fires.

Foreseeable Future Actions

Construction Related Projects and Plans

Greenway Trail – Phase V (Greenway V) GRCA completed an EA and FONSI to construct an approximately one-mile paved trail from Pipe Creek Vista, an overlook along Desert View Drive, to the South Kaibab Trailhead. Completion of this trail segment will connect the paved rim trail from Mather Point to the South Kaibab Trailhead. The project's scope also includes reconfiguring Overlook parking for enhanced safety and providing adequate room for the trail to cross the overlook area; creating an accessible path from the South Kaibab Trailhead parking area to the trailhead itself with improved site amenities; and identifying a connector trail between South Entrance Road and the project area for Arizona Trail users, bicyclists and equestrians.

Bright Angel Trailhead GRCA completed an EA and FONSI to develop and implement a design plan for the Bright Angel Trailhead area. Proposed actions include developing a plaza near the primary trailhead; enhancing trail connections and wayfinding; constructing a new restroom near the proposed plaza and existing mule corral; and differentiating vehicle circulation in the parking area from pedestrian zones in the project area. Future phases may include hardening the parking surface and delineating parking spaces for approximately 79 vehicles, additional revegetating and landscaping, enhancing wayfinding and interpretive signage and creating an interpretive node at Kolb Garage.

Impairment

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

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

1. Necessary to fulfill specific purposes identified in the park's establishing legislation or proclamation;
2. Key to the park's natural or cultural integrity; or
3. Identified as a goal in the park's GMP or other relevant NPS planning documents

Impairment may result from NPS, visitor or other activities undertaken by concessioners, contractors and others operating in the park. An impairment determination is made in the Conclusion section for each resource topic carried forward in this chapter.

Unacceptable Impacts

The impact threshold at which impairment occurs is not always readily apparent. Therefore, the park service applies a standard that assures impairment will not occur by avoiding unacceptable impacts. These are impacts that fall short of impairment, but are still not acceptable within a particular park's environment. Park managers must not allow uses that would cause unacceptable impacts; they must evaluate existing or proposed uses and determine whether associated impacts on park resources and values are acceptable.

Virtually every form of human activity within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be disallowed. Therefore, for the purposes of these policies, unacceptable impacts are impacts that, individually or cumulatively, would

- Be inconsistent with a park's purposes or values, or
- Impede attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- Create an unsafe or unhealthful environment for visitors or employees, or
- Diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- Unreasonably interfere with
 - Park programs or activities, or
 - An appropriate use, or
 - The atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic or commemorative locations within the park
 - NPS concessioner or contractor operations or services (NPS 2006)

In accordance with Management Policies, park managers must not allow uses that would cause unacceptable impacts to park resources. To determine if unacceptable impacts could occur to GRCA resources and values, impacts of proposed actions in this Environmental Assessment were evaluated based on the above criteria. A determination on unacceptable impacts is made in the Conclusion section for each of the physical resource topics carried forward in this chapter.

Soundscape

Affected Environment

In accordance with Management Policies and Director's Order 47 Sound Preservation and Noise Management, an important component of the NPS mission is preservation of natural soundscapes associated with national park units (NPS 2006). Natural soundscapes exist in the absence of human-caused sound. Natural ambient soundscape is the aggregate of all natural sounds in park units, together with the physical capacity for transmitting natural sounds. Natural

sounds occur within and beyond the range of sounds that humans can perceive, and can be transmitted through air, water or solid materials. The frequencies, magnitudes and durations of human-caused sound considered acceptable varies among NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The natural soundscape, also referred to as natural quiet, is an important park resource, and is specifically identified as a resource requiring protection in legal and public documents including the 1975 Grand Canyon National Park Enlargement Act; 1987 National Park's Overflights Act; the 1995 Grand Canyon National Park General Management Plan; and the National Park's Air Tour Management Act of 2000.

A GMP management objective states, "Protect the natural quiet and solitude of the park, and mitigate or eliminate the effects of activities causing excessive or unnecessary noise in, over, or adjacent to the park."

The Depot and rail lines are located in GRCA's developed area. Existing sounds are most often generated from train rumble and whistles, vehicular traffic (visitors and employees entering/leaving the park), people, climate controls on the buildings, some wildlife such as birds, and wind. Sound generated by the train whistle is expected to decrease significantly pending Federal Railroad Administration whistle exemption implementation described earlier in this chapter.

Methodology

Soundscape

Thresholds of change for intensity of an impact on soundscape are defined as

Negligible Existing sound environment not affected, or effects at or below level of detection due to existing human-related activity in the area

Minor Effects to existing sound environment detectable, but due to existing human-related activity in the area, changes of little consequence to visitor experience or biological resources. Mitigation measures, if needed to offset adverse effects, easily and successfully implemented

Moderate Effects readily detectable, and despite existing human-related activity in the area, changes apparent to visitors or to biological resources. Mitigation measures, if needed to offset adverse effects, extensive and likely successful

Major Effects obvious, and despite existing human-related activity in the area, changes result in substantial consequences to visitor experience or to a broader range of biological resources. Extensive mitigation measures needed to offset any adverse effects, and their success could not be guaranteed

Nature of Impact Adverse An adverse impact results from construction noise and train noise including rumbling, whistling and idling

Beneficial A beneficial impact results from reduced private vehicle traffic and decreased train idling

Duration Short Term Effects temporary or sporadic

Long Term Effects permanent or continual

Alternative A

No Action

Soundscape

Adverse impacts to soundscape from current train operations include train whistling, rumbling, idling, bus idling, and sounds of people disembarking the train. Beneficial impacts to soundscape result from reduced private vehicle traffic.

Sound generated by train whistles often far exceeds ambient decibel levels. Train whistles can be heard in the inner canyon as well as throughout the developed area. Whistle sounds are expected to decrease significantly pending implementation of Federal Railroad Administration whistle exemption discussed earlier in this chapter. Current impacts from whistles are adverse minor short term.

Train rumbling and idling also directly impacts soundscape. Trains rumbling on railroad tracks, as they arrive or depart South Rim, cause direct impacts to soundscape. In addition, parked trains idle for several hours each day while parked at the Depot. Train rumbling and idling cause short-term minor adverse impacts on soundscape.

Additional impacts on soundscape result from idling buses and noise of people disembarking and embarking the train. Commercial buses that provide tours to train passengers, idle in South Rim Depot area as they await passengers. Idling has a negligible adverse impact on soundscape. In addition, between 100 and 950 passengers arrive per train each day, up to two currently. These crowds would increase noise levels and have a negligible adverse impact on soundscape in the Depot area.

Finally, less visitors drive private vehicles into the park because of the train. As mentioned above, between 100 and 950 people arrive on each train and therefore these passengers are not driving private vehicles into the park. Traffic noise from private vehicles has an overall adverse impact on soundscape. Therefore, this reduction in vehicles has a beneficial minor long-term impact on soundscape.

Cumulative Impacts

Alternative A

Soundscape

Cumulative impacts on soundscape were determined by combining impacts of Alternative A with other past, present and reasonably foreseeable future actions having impacts on soundscape.

Past activities considered in this analysis include aircraft overflights and construction projects. These actions cause short- and long-term moderate adverse impacts to soundscape. Recently completed projects that could have a cumulative effect when combined with Alternative A include Hermit Road Rehabilitation and South Rim Visitor Transportation Plan. These projects result in short-term minor adverse impacts. Foreseeable future projects include the Bright Angel Trailhead Project and train whistle exemption which would have beneficial minor long-term impacts on soundscape.

Alternative A implementation combined with past, present and planned activities in the project area would result in adverse long-term minor impacts to soundscape. Alternative A would have a negligible contribution to adverse effect because train-associated noise occurs in short intervals throughout the day and is localized; and less private vehicles are in the park because visitors arrive by train.

Conclusion

Alternative A

Soundscape

Under Alternative A, adverse impacts on soundscape would continue to be minor short term from train whistling, idling and rumbling; bus idling; and the sound of people disembarking the train. Beneficial impacts under Alternative A from decreased private vehicle traffic would

continue to be minor long term. Cumulative impacts to soundscape would be adverse long term minor. No impairment of or unacceptable impacts to soundscape would result.

Alternative B	Preferred Alternative	Soundscape
Impacts to soundscape under Alternative B would be similar to Alternative A. These impacts include noise from train whistling, idling and rumbling; bus idling; and the sound of people disembarking the train. Additional actions proposed under Alternative B include allowance of up to three daily trains per day and 30 special use trains and events per year, installation of ground power and possible restoration of tracks 5 and 6.		

Increased impacts to soundscape from allowing up to three daily trains and 30 special use trains and events per year from Williams to Grand Canyon would be both beneficial and adverse. Although number of trains has not been capped in the past, the train concessioner generally operates one or two trains per day based on demand. An additional train would increase whistle, rumbling and idling sounds at the Depot, and sounds of people disembarking the train. These adverse impacts would be short term negligible. An additional train also decreases the number of private vehicles entering the park having a minor beneficial long-term impact on soundscape.

Ground power installation would decrease idle time and, in turn, decrease adverse impacts to soundscape. Some impacts to soundscape would also occur during construction as power lines would need to be placed alongside existing tracks. These resultant impacts would be negligible adverse short term.

Finally, restoration of tracks 5 and 6, if needed, would result in some short-term adverse minor impacts from construction. Construction would include gravel removal and repair and replacement of railroad ties and tracks as needed.

Cumulative Impacts	Alternative B	Soundscape
Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to those for Alternative A. Additional beneficial impacts would result as described above from ground power installation. Cumulative impacts would be adverse minor long term. Alternative B would have a negligible contribution to this overall adverse impact.		

Conclusion	Alternative B	Soundscape
Alternative B would result in minor short- and long-term adverse impacts from train whistling, rumbling, and idling; bus idling; the sound of people disembarking the train; and during construction to install ground power and possibly restore tracks 5 and 6. Beneficial impacts from decreased private vehicle traffic would be minor long term. Cumulative impacts would be adverse minor long term. No impairment of or unacceptable impacts to soundscapes would result.		

Visitor Experience

Affected Environment

According to Management Policies, enjoyment of park resources and values by people is part of the fundamental purpose of all park units (NPS 2006). The NPS is committed to providing appropriate, high quality opportunities for visitors to enjoy the parks, and will maintain, within the parks, an open, inviting and accessible atmosphere to every segment of society. Further, the NPS will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to

the superlative natural and cultural resources found in the parks. NPS 2006 Management Policies also state scenic views and visual resources are highly valued associated characteristics the NPS should strive to protect (NPS 2006).

Currently, visitors arrive at South Rim by private vehicle, on foot or bicycle; by tour bus; or by train. No regularly scheduled public transit service is provided to South Rim. Of the visitors that visit South Rim, 75% enter by private vehicle, 19% by tour bus and 6% by train (NPS 2008).

In 2007, GRCA visitation was over 4.5 million (4,515,733) (NPS 2008). Recreation park activities include hiking, backpacking, camping, viewing (nature, wildlife, cultural sites, canyon vistas and astronomy), white-water rafting, mule rides (limited to three trails), photography, painting, lodging at Phantom Ranch and enjoying wilderness settings in backcountry or social settings in front country. In addition to transport, train riding is considered a recreational opportunity for visitors.

Methodology

Visitor Experience

Methodology used for assessing impacts to visitor experience is based on how changes in train operations would affect the visitor, particularly regarding visitors' enjoyment of the park's primary resources. Thresholds for this impact assessment are

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

Duration	Short term	A transitory effect or one that largely disappears over a period of hours or days
	Long term	An effect lasting months or years

Alternative A

No Action

Visitor Experience

Alternative A continues current train operations and direct impacts on visitor experience. Beneficial impacts include riding the train; viewing the train arriving, departing or idling at South Rim; opportunities to ride a special use train or participate in a special event; and decreased private vehicle traffic.

Riding on the historic rail lines from Williams to Grand Canyon results in beneficial impacts for train visitors and those in the South Rim Village area. The train is of interest to many visitors. In addition, a decrease in private vehicle traffic due to the number of visitors entering the park by train would have further beneficial impacts on visitor experience. These beneficial impacts would be long term moderate.

Adverse impacts to visitor experience include crowding and congestion when the train arrives at South Rim. These adverse impacts would be minor short term.

Cumulative Impacts

Alternative A

Visitor Experience

Cumulative impacts on visitor experience were determined by combining impacts of Alternative A with other past, present and reasonably foreseeable future actions having impacts on visitor experience. Past activities considered in this analysis include fire management actions, aircraft overflights and construction projects. These actions have caused short-term adverse impacts including increased noise, decreased visibility from smoke and traffic delays from construction. Long-term minor beneficial impacts have also resulted from these activities, including improved access and quality of experiences throughout the park.

Recently completed projects that could have a cumulative effect when combined with Alternative A include South Entrance Road Improvements, Parkwide Restrooms, Hermit Road Rehabilitation, Greenway Trail and South Rim Visitor Transportation Plan. These projects have a visitor experience component and are intended to have long-term moderate beneficial impacts. Some short-term minor adverse impacts are expected during construction.

Foreseeable future projects include the Bright Angel Trailhead Project and parking construction at the Visitor Center. Again, these projects are designed to benefit visitors, although there would be some short-term minor adverse impacts on visitor experience during construction.

Cumulatively, effects of Alternative A, when combined with other past, present and reasonably foreseeable actions, would result in long-term beneficial moderate effects on visitor experience. Alternative A would have a negligible contribution to this cumulative effect.

Conclusion

Alternative A

Visitor Experience

Under Alternative A, moderate beneficial long-term impacts would be experienced since visitors would continue to experience the train as a passenger or an observer. Some minor adverse short-term impacts would result from congestion and crowding when trains arrive at South Rim. Cumulative impacts would be beneficial long term minor. No unacceptable impacts to visitor experience would result.

Alternative B

Preferred Alternative

Visitor Experience

Impacts to visitor experience under Alternative B would be similar to those in Alternative A. Beneficial impacts include train riding; viewing the train arriving, departing or idling at South Rim; opportunities to ride a special use train or participate in a special event; and decreased private vehicle traffic. Adverse impacts to visitor experience would include crowding and congestion when the train arrives at South Rim. These adverse impacts would be minor short term.

Additional actions proposed under Alternative B include allowance of up to three daily trains and 30 special use trains and events yearly, display of the historic steam engine, increased interpretative programs and materials, ground power installation, and possible restoration tracks 5 and 6.

Allowing up to three daily trains has potential to enhance visitor experience by providing additional opportunities to travel to the park by train. If additional visitors chose to ride the train, the number of passenger cars would be reduced and further enhance visitor experience by reducing in-park traffic.

Display of the historic steam engine and increased train and Depot interpretation would have beneficial impacts on visitor experience. More visitors could experience the train and learn about its historic use.

Improvements including ground power installation and potential restoration of tracks 5 and 6 would also have long-term beneficial impacts on visitor experience. Ground power installation would eliminate need for the train to idle at South Rim Depot and would also decrease noise and improve air quality. Opening of tracks 5 and 6, if needed, would enhance safety in the Depot area and aid in trains in the depot area to accommodate up to three daily trains each day. Some adverse short-term minor impacts to visitor experience would occur during construction.

Cumulative Impacts	Alternative B	Visitor Experience
Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to Alternative A. Additional beneficial impacts would result as described above from ground power installation, increased interpretive opportunities including display of the historic steam engine and increased opportunities to ride the train. Cumulative impacts would be beneficial moderate long term. Alternative B would have a minor contribution to this overall beneficial impact on visitor experience.		

Conclusion	Alternative B	Visitor Experience
Under Alternative B moderate beneficial long-term impacts would occur from ground power installation, increased interpretive opportunities including display of the historic steam engine and increased opportunities to ride the train. Short-term adverse minor impacts would also occur due to construction. Cumulative impacts would be beneficial long term moderate. No unacceptable impacts to visitor experience would result.		

Public Health and Safety

Affected Environment

Park managers seek to provide a safe and healthful environment for visitors and employees. Grand Canyon Village is the most popular destination in GRCA for many visitors. Train operations deliver 6% of total annual visitors to the Depot area. Greater concentrations of visitors in Grand Canyon Village may potentially increase public safety and health concerns. Two aspects of public health and safety related to train operations are park railroad crossings and pedestrian traffic in and around South Rim Depot area.

Methodology	Public Health and Safety
Baseline information used to assess impacts to public health and safety is described in the methodology section at the beginning of this chapter, and includes park staff knowledge of the resources and site; review of existing literature and park studies; information provided by NPS and other agency specialists; and professional judgment. Detailed information on GRCA natural and cultural resources summarized in the 1995 GMP and associated Environmental Impact Statement (EIS) was specifically referenced for information on affected project-area resources. Additional information sources on public health and safety used as a basis for this evaluation are described above in the affected environment section.	

Thresholds of change for intensity of an impact on public health and safety are

Negligible A change in public health and safety not measurable or perceptible

Minor A change in public health and safety slight and localized with few measurable consequences

Moderate A change to public health and safety readily apparent with measurable consequences

Major A severely adverse or exceptionally beneficial change in public health and safety

Duration Short term A change lasting several minutes to one day
Long term A change lasting greater than one day

Nature of Impact Beneficial Reduction in safety concerns for visitors and/or park employees
Adverse Increase in safety concerns for visitor and/or park employees

Alternative A	No Action	Public Health and Safety
Impacts to public health and safety under Alternative A would continue to be adverse minor long term. These adverse impacts result from concerns at railroad crossings and with pedestrian traffic described here.		

Railroad crossings Operational train tracks cross park roads in park several locations. In the Grand Canyon Village area, both crossings near Hermit Road interchange and Maswik Lodge are made visible and equipped with gates and flashing signals. Other crossings on Rowe Well Road are identified with railroad crossing signs but do not have flashing signals or gates to warn and stop traffic. Train whistles will continue at crossings without gates or signals. Traffic on Rowe Well road is generally light and train interactions are rare. When the train turns or parks near Maswik Lodge, the railroad crossing may be blocked until the train passes. Signals and gates stop traffic during such crossings. Because each train is limited to a maximum of 15 cars, the time required for the train to clear the crossing is short. Impacts to public safety at railroad crossing are negligible long term adverse.

Pedestrian Traffic The 100-950 visitors who travel to the park by train are required to stay on board until the train has stopped in the Depot. Passengers are not allowed to move around on the platform while trains are moving. Once passengers have disembarked, walkways delineate the route and keep visitors off the tracks as they are funneled towards the Depot, bus loading zone and pedestrian crosswalks leading to the rim.

Passengers may take guided bus tours operated by concessioners, coordinated with the train's arrival and departure schedule. Passengers board their bus near the Depot on Village Loop Drive's south side. In the future, bus unloading and loading will be relocated adjacent to the south side of track 7 near parking Lot D, according to the South Rim Transportation Plan (NPS 2008). Relocation of the bus loading/unloading will occur after Visitor Center parking is completed and some parking at Lot D removed. Impacts to public safety related to pedestrian traffic would continue to be minor long term adverse until the loading area is moved. Once the loading area is moved, impacts may become negligible.

Cumulative Impacts	Alternative A	Public Health and Safety
Cumulative impacts were determined by combining Alternative A impacts with other past, present and reasonably foreseeable future actions having impacts on public health and safety. Past activities considered in this analysis include fire management actions and construction projects. These actions have caused short-term adverse impacts including smoke, dust and traffic congestion. Recently completed projects with cumulative effect when combined with		

Alternative A could include Hermit Road Rehabilitation and South Rim Visitor Transportation Plan. Some short-term adverse impacts are expected during construction; however these projects will have an overall long-term beneficial impact on health and safety. Foreseeable future projects include the Bright Angel Trailhead Project. There would be some short-term minor adverse impacts on visitor experience during construction.

Cumulatively, effects of Alternative A, when combined with other past, present and reasonably foreseeable actions, would result in minor beneficial long-term effects on public health and safety. Alternative A would have a negligible contribution to this cumulative effect.

Conclusion	Alternative A	Public Health and Safety
Under Alternative A minor adverse long-term effects on public health and safety would result from pedestrian congestion and crossing from the Depot area and concerns at railroad crossings in the park. Cumulative impacts would be adverse, long-term, and minor. No unacceptable impacts to public health and safety would result.		

Alternative B	Preferred Alternative	Public Health and Safety
Impacts on public health and safety under Alternative B would be similar to Alternative A. Beneficial impacts resulting from the train whistle, gates, flashing lights, and crossing guards would be minor long term. Adverse impacts including safety concerns at railroad crossings and with pedestrian traffic would be minor long term.		

Additional actions proposed under Alternative B include allowance of up to three daily trains and 30 special use trains and events per year, display of the historic steam engine, increased interpretative programs and materials, ground power installation, and possible restoration of tracks 5 and 6. Arrival of three trains per day would add to congestion around the Depot throughout the day. However, the schedule would be assessed to ensure the safest arrival and departure for all three trains. This assessment would also be completed for special use trains and special events to eliminate safety concerns with pedestrian traffic or railroad crossings.

Construction related to ground power installation and restoration of tracks 5 and 6 would result in short-term adverse minor impacts to public health and safety.

Opening of tracks 5 and 6, if needed, would allow flexibility in parking and moving trains resulting in safer operations by allowing sufficient space and time for loading and unloading passengers and minimizing unnecessary train movement.

Cumulative Impacts	Alternative B	Public Health and Safety
Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to Alternative A. Additional beneficial impacts result as described above from restoration of tracks 5 and 6. Additional adverse impacts include increased Depot congestion throughout the day. Cumulative impacts would be beneficial minor long term. Alternative B would have a negligible contribution to overall beneficial impact on public health and safety.		

Conclusion	Alternative B	Public Health and Safety
Alternative B implementation would result in minor short-term adverse impacts during construction and long-term minor impacts from continued safety concerns at railroad crossings and with pedestrian traffic. Beneficial impacts from the train whistle, gates, flashing lights and crossing guards, and potential restoration of tracks 5 and 6 would be minor long term.		

Cumulative impacts would be beneficial minor long term. No unacceptable impacts to public health and safety would result.

Park Operations

Affected Environment

Park operations and management refer to adequacy of staffing levels and quality and effectiveness of park infrastructure protecting and preserving vital resources and providing for an effective visitor experience. Impacts related to managing GRCA train concession pertain to Concessions Management, Facility Management and Visitor and Resource Protection operations in and around the Depot.

The train affects park operations through administration of a concessions contract, transportation of visitors to the park, decreased private vehicles in the park, use of park utilities, and maintenance of the rail line and associated structures.

Methodology

Park Operations

Implementation of a project could affect park operations such as number of employees needed; type of duties conducted; when/who conducts these duties; how duties are conducted; and administrative procedures.

Thresholds of change for intensity of impact on public health and safety are

Negligible	Park operations not affected or effect at or below lower levels of detection, and no appreciable effect on park operations
Minor	Effect detectable, but of a magnitude with no appreciable adverse or beneficial effect on park operations. If mitigation needed to offset adverse effects, it is relatively simple and successful
Moderate	Effects readily apparent and result in a substantial adverse or beneficial change in park operations in a manner noticeable to staff and public. Mitigation measures probably necessary to offset adverse effects and likely successful
Major	Effects readily apparent and result in substantial adverse or beneficial change in park operations in a manner noticeable to staff and public, and markedly different from existing operations. Mitigation measures to offset adverse effects needed, expensive, and their success not guaranteed

Duration Short term A change lasting several minutes to one day
Long term A change lasting greater than one day

Alternative A

No Action

Park Operations

No improvements or construction result under Alternative A. No change to current train operations occur. Under Alternative A, no substantial changes to park operations occur. Current operations affected by the train include administration of concessions contract, transportation of visitors to the park, utilities use and maintenance of rail line and Depot.

Grand Canyon Concessions division employees work with train concessioner to administer contract for the train operations; however, these impacts on park operations are negligible.

The train transports park visitors into the park and therefore bypasses entrance gates. This has an overall beneficial impact on park operations since there is less demand for park staff at the gates. Additionally, there are less cars coming into the park and therefore less parking needed and potentially less traffic congestion and less traffic violations.

The train concessioner maintains rail lines and Depot decreasing NPS maintenance needs resulting in beneficial negligible long-term impacts on park operations.

Cumulative Impacts	Alternative A	Park Operations
Cumulative impacts were determined by combining Alternative A impacts with other past, present and reasonably foreseeable future actions having impacts on park operations. Past activities considered in this analysis include fire management actions and construction projects. These actions have caused short-term adverse impacts including increased traffic delays and needs for visitor resource and protection actions. Long-term minor beneficial impacts have also resulted from these activities, including improved access.		

Recently completed projects that could have a cumulative effect when combined with Alternative A include South Entrance Road Improvements, Desert View Improvements, Parkwide Restrooms, Hermit Road Rehabilitation, Greenway Trail and South Rim Visitor Transportation Plan. These projects all have a park operations component and are intended to have long-term moderate beneficial impacts. Some short-term adverse impacts are expected during construction. Foreseeable future projects include the Bright Angel Trailhead and Visitor Center parking construction. Some short-term minor adverse impacts on park operations are expected during construction.

Cumulatively, effects of Alternative A, when combined with other past, present and reasonably foreseeable actions, would result in long-term adverse minor impacts on park operations. Alternative A would have a negligible contribution to this cumulative effect.

Conclusion	Alternative A	Park Operations
Under Alternative A, negligible adverse long-term impacts would result from administration of a concessions contract. Minor long-term beneficial impacts would result from visitor transportation into the park and rail line and train Depot maintenance. Cumulative impacts would be adverse minor long-term. No unacceptable impacts would occur.		

Alternative B	Preferred Alternative	Park Operations
Impacts on park operations under Alternative B would be similar to Alternative A. Beneficial impacts resulting from upkeep of railroad-associated structures and features, visitor transportation and decreased passenger vehicles would be minor long term. Adverse impacts including safety concerns near the Depot would be minor long term.		

Additional actions proposed under Alternative B include allowance of up to three daily trains and 30 special use trains and events yearly, display of the historic steam engine, increased interpretative programs and materials, ground power installation, and possible restoration of tracks 5 and 6. These actions would have negligible impacts on park operations.

Cumulative Impacts	Alternative B	Park Operations
Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to Alternative A. Additional adverse impacts would include increased Depot congestion throughout the day. Cumulative impacts would be adverse		

minor long term. Alternative B would have a negligible contribution to this overall beneficial impact on park operations.

Conclusion

Alternative B

Park Operations

Under Alternative B negligible adverse long-term impacts would result from Depot safety concerns and concessions contract administration. Beneficial impacts resulting from rail line and Depot upkeep, visitor transportation, and decreased passenger vehicles would be minor long term. Cumulative impacts would be adverse negligible long term. No unacceptable impacts would occur.

Air Quality

Affected Environment

Clean, clear air is essential to preserve GRCA resources and for visitors to appreciate those resources. Expansive vistas include landmarks miles distant and the vibrant colors and intricate textures of the canyon itself. GRCA is a Federally-mandated Class I Area under the Clean Air Act. As such, park air receives the most stringent protection against air pollution increases and further degradation of air quality-related values. The Act sets a further goal of natural visibility conditions, free of human-caused haze. Park air quality is generally quite good. Pollution levels almost always fall below levels established by the Environmental Protection Agency (EPA) to protect human health and welfare. However, visibility is usually well below natural levels due to air pollution. Most of this pollution originates far outside park boundaries, and arrives in the park as a well-mixed regional haze rather than distinct plumes. The NPS has an affirmative responsibility to protect air quality and its related values in GRCA.

Exotic plant management, including the use of fire and resultant smoke could affect air quality.

Relatively little air pollution is generated by GRCA activities, excepting wildland fires. Efforts to reduce pollution set a good example for park visitors, especially when combined with interpretive messages. Several park programs (including mass transit, conversion of outboard motors from 2- to 4-stroke engines, efficient facility design, etc.) benefit air quality.

Methodology

Air Quality

Baseline information used to assess impacts to air quality includes park staff knowledge of resources and site, review of existing literature and park studies, information provided by NPS and other agency specialists, and professional judgment. Detailed information on GRCA natural and cultural resources in the 1995 GMP and associated EIS was specifically referenced for information on project-area affected resources. Additional air quality information sources used as a basis for this evaluation are as described in the affected environment section.

Thresholds of change for intensity of an impact on air quality are

Negligible No visibility impacts (exhaust plumes, exhaust odors, haze) are produced or emission levels less than 50 tons per year for each pollutant

Minor Visibility and odor impacts are of very short duration and limited aerial extent and emission levels less than 100 tons per year for each pollutant

Moderate Visibility impacts from cumulative emissions likely (based on past visual observations) or emission levels greater than 100 tons per year for any pollutant

Major Visibility impacts from cumulative emissions likely (based on modeling or monitoring) or emission levels equal to or greater than 250 tons per year for any pollutant

Alternative A

No Action

Air Quality

Currently, each train's power car idles for several hours daily while at South Rim Depot. Idling is necessary to provide climate control to train cars, but produces noise and exhaust fumes resulting in minor adverse long-term impacts to air quality.

As transport for 100-950 visitors per train (up to two per day), the train reduces the number of cars entering South Rim. Fewer passenger vehicles reduce air pollution therefore resulting in a beneficial long-term negligible impact.

Cumulative Impacts

Alternative A

Air Quality

Cumulative impacts were determined by combining impacts of Alternative A with other past, present and reasonably foreseeable future actions having impacts on air quality. Past activities considered in this analysis include fire management and construction projects. These actions have caused short-term adverse impacts including dust and smoke.

Recently completed projects that could have a cumulative effect when combined with Alternative A include South Entrance Road Improvements, Desert View Improvements, Parkwide Restrooms, Hermit Road Rehabilitation, Greenway Trail and South Rim Visitor Transportation Plan. Short-term minor adverse impacts are expected during construction. Foreseeable future projects include the Bright Angel Trailhead and Visitor Center parking construction. These projects would result in some short-term minor adverse impacts on air quality during construction.

Cumulatively, effects of Alternative A, when combined with other past, present and reasonably foreseeable actions, would result in long-term adverse minor effects on air quality. Alternative A would have a minor contribution to this cumulative effect.

Conclusion

Alternative A

Air Quality

Under Alternative A, minor adverse long-term impacts would result from train idling at South Rim Depot. Beneficial impacts from a reduction in South Rim passenger vehicles would be long term negligible. Cumulative impacts would be adverse long term minor. No impairment of or unacceptable impacts to air quality would result.

Alternative B

Preferred Alternative

Air Quality

Impacts on air quality under Alternative B would be similar to some impacts in Alternative A. Beneficial impacts resulting from reduction of South Rim passenger vehicles would be negligible long term.

Additional actions proposed under Alternative B include allowance of up to three daily trains and 30 special use trains and events yearly, historic steam engine display, increased interpretative programs and materials, ground power installation and possible restoration of tracks 5 and 6.

Use of a third train would further limit passenger vehicles entering the park and therefore would have a beneficial long-term negligible impact.

Ground power installation would minimize Depot train idling. Underground electrical utilities would allow train cars to be plugged in to the park's electrical grid, and could eliminate the need for train cars to idle while parked. Idling elimination would result in a noticeable improvement of

air quality in this area. Impacts to air quality under Alternative B would be moderate beneficial long term.

Some adverse impacts from construction activities and resultant dust may occur during ground power installation and potential restoration of tracks 5 and 6. These impacts would be negligible adverse short term.

Cumulative Impacts	Alternative B	Air Quality
Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to Alternative A. Additional beneficial impacts would include ground power installation and Depot idling reduction. Cumulative impacts would be beneficial minor long term. Alternative B would have a minor contribution to this overall beneficial impact on air quality.		

Conclusion	Alternative B	Air Quality
Under Alternative B moderate beneficial long-term impacts would result from Depot idling reduction and potential to decrease passenger cars entering the park. Some short-term adverse negligible impacts would occur during construction activities. Cumulative impacts would be adverse long term minor. No impairment of or unacceptable impacts to air quality would result.		

Historic Resources

Affected Environment

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

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

The term historic resources refers to both historic and prehistoric resources, defined as constructions that shelter any form of human habitation or activity. The project area contains the Grand Canyon Depot, a National Historic Landmark. The project area also contains historic rail lines. Both rail lines and Depot are part of the Grand Canyon Village National Historic Landmark District.

Reopening tracks 5 and 6 is addressed, and may occur after new parking at the Grand Canyon Visitor Center (formerly known as Canyon View Information Plaza) is completed.

Methodology

Baseline information used to assess impacts to historic resources includes park staff knowledge of resources and site; information provided by NPS and other agency specialists and professional judgment. Thresholds of change for intensity of an impact on historic resources are

Negligible	Impact at lowest levels of detection, barely perceptible and not measurable.
Minor	<p><i>Adverse</i> Impact measurable or perceptible, but slight and affects a limited area of a structure or group of structures. Impact does not affect character-defining features of a NRHP-eligible or listed structure and has no permanent effect on structural integrity</p> <p><i>Beneficial</i> Stabilization/preservation of features in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i></p>
Moderate	<p><i>Adverse</i> Impact measurable and perceptible. Impact changes one or more character-defining feature(s) of historic structure, but does not diminish integrity of the resource to the extent that NRHP eligibility is jeopardized</p> <p><i>Beneficial</i> Rehabilitation of structure is in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i></p>
Major	<p><i>Adverse</i> Impact substantial, noticeable and permanent. For NRHP eligible or listed historic resources, impact changes one or more character-defining features(s) of the historic resource, diminishing integrity of the resource to the extent it is no longer eligible for NRHP listing</p> <p><i>Beneficial</i> Impact of exceptional benefit and restoration of a structure is in accordance with <i>Secretary of the Interior's Standards for the Treatment of Historic Properties</i></p>

Alternative A	No Action	Historic Resources
Continuation of current train operations would have a beneficial moderate long-term impact on project area historic resources. Train concessioner is responsible for Depot, rail line and crossing repairs and maintenance. As historic resources, maintenance of these properties is essential. Therefore, current train operations would provide protection to historic structures.		

Cumulative Impacts	Alternative A	Historic Resources
Cumulative impacts on historic resources were determined by combining impacts of Alternative A with other past, present and reasonably foreseeable future actions.		

South Rim historic structures have sustained previous impacts resulting from modifications to historic resources. Modern buildings have intruded on the historic setting and adversely impacted structures and districts. Furthermore, previous deterioration of some buildings as a result of natural weathering and use has compromised defining architectural characteristics. These past impacts are moderate adverse long term. Most recently implemented, in-progress and foreseeable future projects with potential to affect historic structures have been discussed with the SHPO. Consultation with the park's cultural resource staff, Historical Architect and SHPO as the basis for future projects would ensure any adverse effects of future projects on historic structures would be negligible to minor. Therefore, cumulative impacts would be adverse moderate long term.

Conclusion	Alternative A	Historic Resources
Alternative A has a beneficial long-term moderate impact on historic resources from continued care and maintenance of the historic train Depot, rail lines and crossings. Cumulative impacts are long term moderate adverse. No impairment of or unacceptable impacts to historic resources would result.		

Alternative B	Preferred Alternative	Historic Resources
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Impacts on historic structures under Alternative B would be similar to Alternative A impacts. Beneficial impacts resulting from maintenance of the Depot, rail lines and crossings would be moderate long term.

Additional actions proposed under Alternative B include allowance of up to three daily trains and 30 special use trains and events yearly, historic steam engine display, increased interpretative programs and materials, ground power installation, and possible restoration of tracks 5 and 6.

Historic steam engine display and interpretation would have additional beneficial impacts on historic resources; however, these impacts would be negligible.

Potential restoration of tracks 5 and 6 would not result in changes to area configuration or use. Existing historic stone walls and curbing would not be affected. Return to historic line use will improve visitor safety which will lessen demands on park resources. Additional electricity required to operate train car climate controls will not have an impact on historic resources. Continued maintenance of rail lines and Depot constitute a beneficial long-term moderate impact.

Cumulative Impacts	Alternative B	Historic Resources
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Alternative B implementation combined with other past, present and reasonably foreseeable future actions would result in impacts similar to Alternative A. Additional beneficial impacts would include historic steam engine display and interpretation and restoration of tracks 5 and 6. Cumulative impacts would be adverse moderate long term. Alternative B would have a negligible contribution to this overall adverse impact on historic resources.

Conclusion	Alternative B	Historic Resources
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Alternative B would have a moderate beneficial long-term impact on historic resources from continued care and maintenance of the historic train Depot, rail lines and crossings; historic steam engine display and interpretation; and restoration of tracks 5 and 6. Cumulative impacts would be adverse moderate long term. No impairment of or unacceptable impacts to historic resources would result.

CHAPTER 4

CONSULTATION AND COORDINATION

Internal Scoping

Internal scoping was conducted by an Interdisciplinary Team of GRCA and Intermountain Support Office (ISO) professionals. IDT members met on September 16, 2008 to discuss project purpose and need, potential environmental impacts and possible mitigation measures. The IDT met on October 13, 2008 to further refine purpose and need and discuss alternatives. The IDT met again on December 4, 2008. The results of these meetings are documented in this EA.

External Scoping

External (public) scoping was conducted to inform various agencies and the public about Grand Canyon National Park Train Operations and to generate input on EA preparation. External scoping was initiated with distribution of a scoping letter to inform the public of the proposal, and generate input on EA preparation. A scoping letter dated September 4, 2008 was mailed to over 250 individuals, companies and groups throughout Arizona and the United States. In addition, a letter was mailed to various Federal and state agencies, affiliated Native American tribes, local governments and news organizations. Scoping information was also posted on the park website and at <http://parkplanning.nps.gov/grca>.

During the 30-day scoping period, thirty-six public responses were received. Approximately 24 responses supported train services. Other comments questioned the evening/excursion train, cost of the train ride and noise levels. One American Indian tribe responded with no concerns.

In addition to the aforementioned public entities, the following agencies and Native American tribes were provided scoping information or were contacted for information regarding the project

Federal Agencies

U.S. Fish and Wildlife Service
Federal Highway Administration
Bureau of Indian Affairs
Tonto National Forest
Kaibab National Forest
Coconino National Forest

State Agencies

Arizona State Historic Preservation Office
Arizona Game and Fish Department
Arizona Department of Environmental Quality
Arizona Department of Transportation

Local Communities

Flagstaff
Fredonia
Page
St. Johns
Williams

Affiliated Native American Groups

Havasupai Tribe

Hopi Tribe
 Hualapai Tribe
 Kaibab Band of Paiute Indians
 Las Vegas Paiute Tribe
 Navajo Nation
 Paiute Indian Tribe of Utah
 Pueblo of Zuni
 San Juan Southern Paiute
 White Mountain Apache
 Yavapai Apache

Environmental Assessment Review and List of Recipients

The Environmental Assessment was released for public review in June 2009. To inform the public of EA availability, the NPS published and distributed a letter and press release to various agencies, tribes and members of the public on the park mailing list. Copies of the EA will be provided to interested individuals upon request. Copies will also be available for review on the internet at <http://parkplanning.nps.gov/grca>.

The Environmental Assessment is subject to a 30-day public comment period ending July 29, 2009. During this time, the public is encouraged to submit written comments to the National Park Service at the Planning, Environment, and Public Comment website (<http://parkplanning.nps.gov/grca>) or at the address provided at the beginning of this document. Following the close of the comment period, all public comments will be reviewed and analyzed, prior to the release of a decision document. The NPS will issue responses to substantive comments received during the public comment period, and will make appropriate changes to the Environmental Assessment, as needed.

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REFERENCES CITED

National Park Service Director's Orders are available online at www.nps.gov/applications/npspolicy/DOrders.cfm

Director's Order 24 Museum Collections Management

Director's Order 28 Cultural Resources Management

Director's Order 28-A Archaeology

Director's Order 47 Soundscape Preservation and Noise Management

Director's Order 77 Natural Resources Management

Director's Order 77-1 Wetlands Protection

Director's Order 77-2 Floodplain Management

Executive Orders are available online at www.archives.gov/federal-register/executive-orders

Executive Order 11990 Protection of Wetlands

Executive Order 11988 Floodplain Management

Executive Order 12898 General Actions to Address Environmental Justice In Minority Populations and Low-Income Populations

Executive Order 13007 Indian Sacred Sites

Secretarial Orders

Secretarial Order 3175 Indian Trust Assets and Tribal Lands
www.usbr.gov/mp/ccao/newmelones/RMP/RIR/5.0-Indian_Trust_Assets.pdf

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EPA 2000 Arizona State Implementation Plan, Chapter 2: Ambient Air Quality Standards, Article 4. Attainment Area Classification, United States Environmental Protection Agency Region 9, Air Programs Website, 2000. Available online at www.azsos.gov/public_services/Title_18/18-02.htm

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NPS 2008	Grand Canyon National Park South Rim Transportation Plan, National Park Service, Grand Canyon National Park. Available online at www.nps.gov/grca/parkmgmt/trans.htm
Ward 2009	Personal communication between RV Ward, Grand Canyon National Park Wildlife Biologist and Paula Homan, Grand Canyon National Park Environmental Protection Specialist

Law, Policy or Regulation

Aircraft Overflights in National Parks Act, 1987, Public Law 100-91	www.gpoaccess.gov/uscode
Clean Water Act (Water Pollution Control Act), 1972, Public Law 92-500, 95-217	www.gpoaccess.gov/uscode
Concessions Policy Act, 1965, Public Law 89-249	http://concessions.nps.gov/document/National%20Parks%20Omnibus%20Management%20Act%20of%201998.pdf
Cumulative Impact, 40 CFR 1508.7	www.nepa.gov/nepa/regs/ceq/1508.htm
Endangered Species Act, 1973, Public Law 93-205	www.gpoaccess.gov/uscode
Farmland Protection Policy Act, 1981, Public Law 97-98	http://thomas.loc.gov
General Authorities Act (National Park Service), 1970 and 1978, Public Law 91-383; 94-458	www.gpoaccess.gov/uscode
Grand Canyon National Park Enlargement Act, 1975, Public Law 93-620	www.gpoaccess.gov/uscode
Grand Canyon National Park Establishment Act, 1919, 40 Stat 1175	www.gpoaccess.gov/uscode
National Historic Preservation Act, 1966, 16 U.S.C. 470 et seq.	www.gpoaccess.gov/uscode

National Parks Air Tour Management Act, 2000, Public Law 106-181

www.gpoaccess.gov/uscode

National Parks Omnibus Management Act Public Law, 1998, Public Law 105- 391

www.gpoaccess.gov/uscode

Acronyms

AGFD	Arizona of Game and Fish Department
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLR	Cultural Landscape Report
dBA	A-weighted decibels
DO	Director's Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
GMP	General Management Plan
GRCA	Grand Canyon National Park
IDT	Interdisciplinary Team
ISO	Intermountain Support Office
MSO	Mexican Spotted Owl
NEPA	National Environmental Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PAC	Protected Activity Center
PL	Public Law
SHPO	State Historic Preservation Officer
STVTP	South Rim Visitor Transportation Plan
USFWS	U.S. Fish and Wildlife Service