National Park Service
U.S. Department of Interior
Arches National Park
Moab, Utah

Finding of No Significant Impact

Parkwide Road Maintenance and Modification

Background

Arches National Park is proposing to rehabilitate approximately 23 miles of roads and pullouts along the Main Entrance Road, Windows Road, Delicate Arch Road, La Sal Mountain View Road, Panorama Point Overlook Road, Salt Valley Overlook Road, Fiery Furnace Road, Maintenance Road, Windows Loop Road including a turnaround segment, and Devils Garden Loop Road which also includes the construction of a turnaround segment. This project will include the removal and replacement of the bridge rail at the Courthouse Wash Bridge, formalizing pulloffs, drainage work on the channel near the entrance station as well as constructing an additional entrance lane intended as a bypass road for pass holders and future shuttle operation.

Selected Action

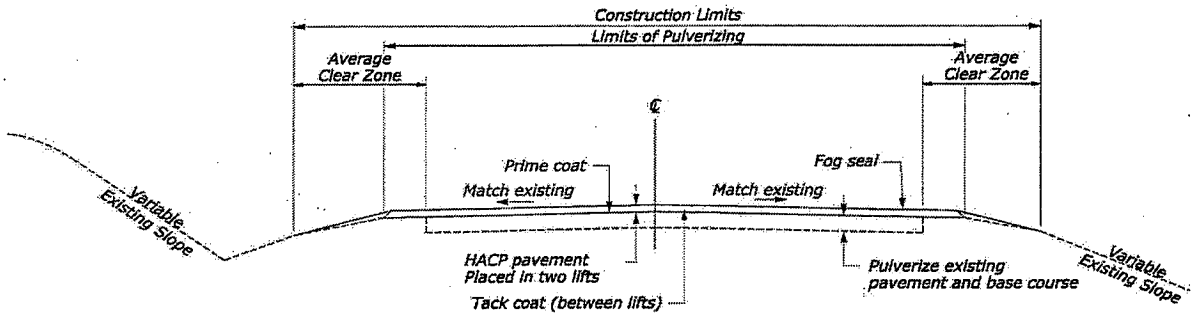
The National Park Service (NPS) will implement the preferred alternative which addresses the rehabilitation, restoring and resurfacing of paved road as well as expanding parking, formalizing pulloffs and providing opportunities to move visitors safely through the park. The following sections describe the proposed road rehabilitation and improvements.

Road Design and Pavement

Main Entrance Road

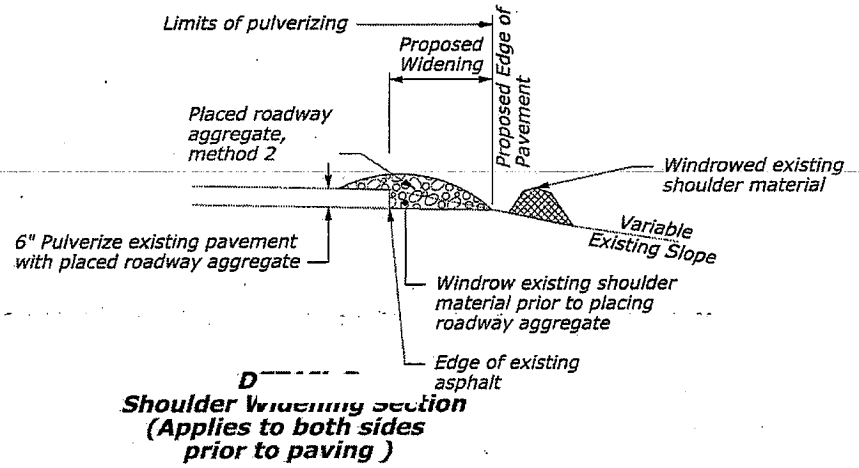
The average existing paved roadway width is 22 feet for the Main Entrance Road. The existing paved width varies from 21 feet to 30 feet. The wider sections of pavement include the paved ditch areas. The existing lane widths vary from nine to ten feet. The existing roadway shoulders vary from no paved shoulder to 11 foot paved ditches that act like shoulders. The proposed typical section for the Main Entrance Road consists of 11 foot lanes and one foot shoulders for a total paved width of 24 feet. The typical section starts just past the entrance station and continues to the beginning of Devils Garden Loop Road. The following figure shows the typical section for the Main Entrance Road. The sub-grade has failed in select locations. Sub-excavation would be used to mitigate the issues. For more information see the Pavements section of this report. Providing a consistent one foot shoulder would be safer for the recent increase in bicycle traffic. The roadway would be widened on the existing bench to accommodate the new typical section (Fig 2).

Figure 1: Proposed Construction to Travelway



To widen the roadway aggregate base would be placed on the edge of the existing roadway and would be pulverized with the existing pavement to meet the new paved width. The existing roadway bench would be able to accommodate the extra widening. The following figure shows a detail for roadway widening (Figure 3).

Figure 2: Detail of Shoulder Widening

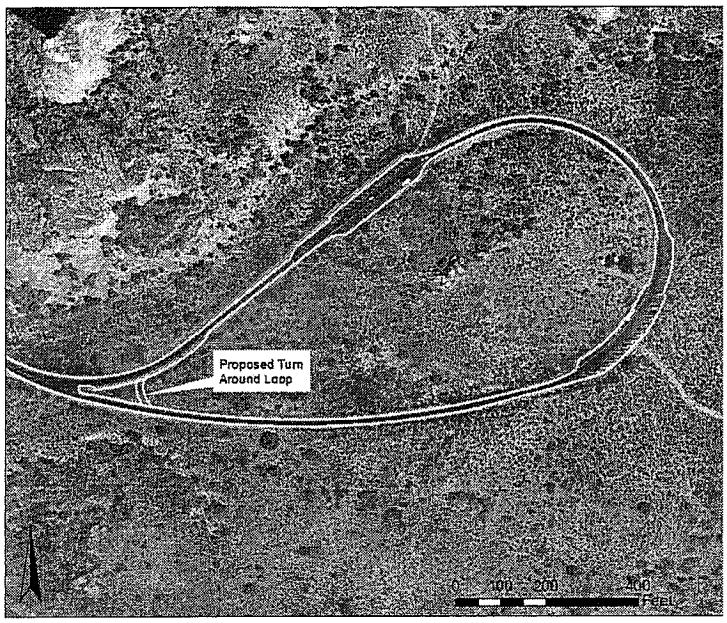


Windows Road

The average existing paved width for Windows Road is 20 feet. The existing paved width varies from 19 feet to 31 feet. The wider sections of pavement include the paved ditches. The lane width varies from 8 to 10 feet. The proposed typical section for the Windows Road is 11 foot lanes and 1 foot shoulders for a total paved width of 24 feet. The roadway would be widened on the existing bench to accommodate the 24 feet of pavement similar to the Main Entrance Road. The existing roadway bench would be able to accommodate the extra widening. The

vertical alignment would remain unchanged. Pulverizing and overlaying the road would raise the profile by three inches.

Figure 3: Windows Conceptual Diagram



This alternative proposed to construct and pave a turnaround loop at the entrance to the one way loop which would allow for vehicles to safely and expediently turn around in this area. Currently visitors who cannot find parking when looping through these areas attempt to turn around on the 24' road bench. This maneuver is often a three-point turn and causes unnecessary damage to the roadsides. Additionally this maneuver impedes the flow of traffic in highly congested areas. Larger vehicles cannot make this turn at all and drive extra distances to areas where they can safely turn around.

Delicate Arch Road

The average existing paved width for Delicate Arch Road is 26 feet. The proposed typical section is 12 foot lanes and one foot shoulders which will match the existing paved bench width. The existing pavement would not be pulverized. A two inch overlay would be placed on top of the existing roadway. Delicate Arch Road is experiencing some sub-grade failures which are causing the road to rut. The sub-grade failure is occurring 0.7 miles from the intersection of Delicate Arch Road and the Main Entrance Road. Sub-grade failure would be addressed by using a type one pavement patch. Sub-excavation would be used to correct problem areas where rutting and sub-grade issues have been found. More information on the pavement structural section can be found in the *Pavement Design* section of this document.

La Sal Mountain View Road, Panorama Point Road, Salt Valley Overlook, and Fiery Furnace Road

La Sal Mountain View Road, Panorama Point Road, Salt Valley Overlook Road, and Fiery Furnace Road have the same typical section (Figure 2). The existing paved width is 20 feet. The existing lane width is 8 to 10 feet. The proposed typical

section paved width is 24 feet. The roadway would be widened on the existing bench accommodate the 24 feet of pavement. Figure 3 shows the detail for roadway widening. The profile for all four roads would be raised by three inches because the existing asphalt would be pulverized and overlaid with 3 inches of new asphalt. All four roads have one way loop/parking areas that are included in this project.

Devils Garden Loop

The Devils Garden Loop Road is a one-way loop that begins at the end of the Main Entrance Road and continues counter clockwise through the Devils Garden area and connects back to the Main Entrance Road. Devils Garden Loop has multiple parking areas. The roadway typical section would be a single 12 foot lane with one foot shoulders on either side. The existing paved width is 14 feet. Figure 2 shows a typical section for Devils Garden Loop Road. The profile would be raised by three inches due to the pulverization of the existing asphalt and three inches of new asphalt.

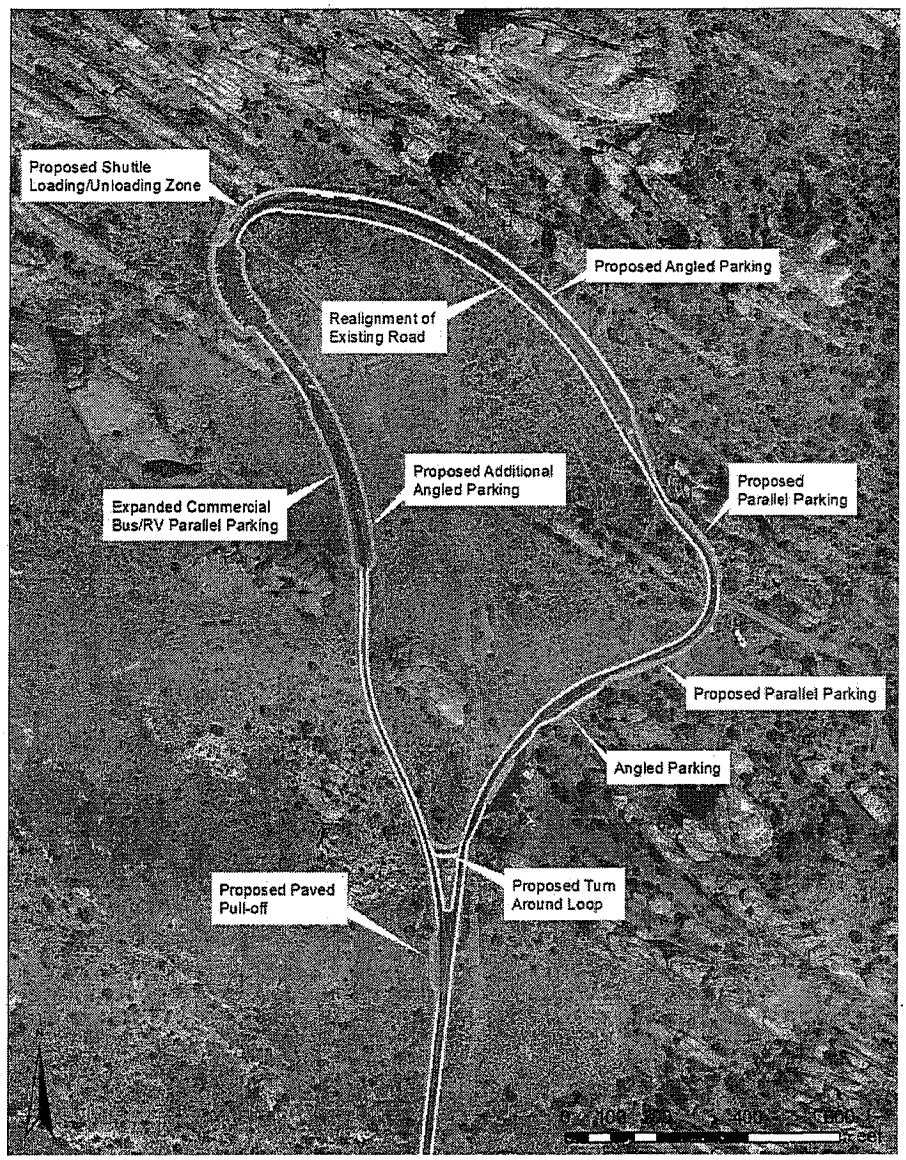
Parking would be expanded in the Devils Garden loop by increasing the total number of current parking spaces from 137 to 225 which increases parking capacity by 60%. Current parallel parking near the picnic area and along the east side of the loop would be expanded to facilitate a pull-in (angled) design. These changes are made to allow the park to provide parking for existing and future visitation.

In addition, a five foot wide sidewalk would be constructed from the trail head to the east along the edge of the new angled spaces. This sidewalk would also extend around the edges of the west-side parking spaces to the expanded commercial bus/RV parallel parking area. This sidewalk would allow visitors to safely access the trailhead and their vehicles.

Signing would be updated encourage RV drivers to continue to pull-in stalls, rather than to park in inbound pull off areas, taking up space that should be available for smaller vehicles. Signs to encourage commercial tour buses to continue to the end of the parking lot to parallel stalls would also be installed.

This alternative would propose to construct and pave one turnaround loop at the south end of the parking loop which would allow for vehicles to safely and expediently turn around in this area. Currently visitors who cannot find parking when looping through the parking area attempt to turn around on the 24' road bench. This maneuver is often a three-point turn and causes unnecessary damage to the roadside. Additionally this maneuver impedes the flow of traffic in highly congested areas. Larger vehicles cannot make this turn at all and drive extra distances to areas where they can safely turn around.

Figure 4: Devils Garden Conceptual Diagram



Pavement Design

Pavement recommendations took into consideration no bus service, the condition of the existing asphalt, the availability of materials, and the haul distance for waste. With these considerations the following is the recommended pavement section.

- 6" Full Depth Reclamation (FDR) (existing asphalt pulverized & blended with the native soil and compacted in place as base)
- 4" of Hot Asphalt Cement Pavement (HACP) overlay on the Main Entrance Road, Devils Garden Loop Road, Devils Garden Bypass Road, La Sal Mountain View Road, Panorama Point Overlook Road, Salt Valley Overlook Road, and Fiery Furnace Road.
- 4.5" of HACP overlay on Windows Road and Windows Loop Road.

- Delicate Arch Road would not be pulverized. A 4.5" HACP overlay would be placed on top of the existing asphalt. Sub-excavation would consist of eight inches of sub-excavation with geogrid and filter fabric placed at the bottom. With eight inches of aggregate base and six inch overlay of HACP. Under-drain would also be used in this area on the cut slopes. Sub-excavation would be used to correct problem areas.
- Colored concrete curb would be used in the loop/parking areas and pullouts.
- Asphalt curb would be used at paved ditch locations

Drainage

Road widening also would require upgrades to roadside ditches at select locations. Three types of ditches may be used depending on the site-specific conditions and the space available. The options include a paved ditch with a curb, a paved curved ditch, or a V-shaped paved ditch. The extent and width of the ditch would vary with location. Certain paved ditch locations would have the asphalt continue to the face of the rock cuts.

This alternative proposes to correct the long term maintenance problem at two culverts near the entrance station (See Figure 6) by:

1. Regrading the drainage between the two culverts to achieve a straight grade from the downstream culvert's inlet to the upstream culvert's outlet.
2. Replacing the downstream culvert with a 48 inch CMP culvert complete with headwalls on the inlet and outlet.
3. Grading the channel section near the park housing and slope back the bank nearest to the park housing at a minimum of 2H: I V and place revetment protection up to the channel crest (approximately five feet in depth).
4. Construct headwalls up and downstream of the existing culvert under the maintenance road.

A stream channel alteration permit would be obtained and approved prior to construction.

To increase capacity at two locations that have a history of backwater and overtopping of the roadway, the project would add 36 inch culverts adjacent to the existing culverts and would place the culverts adjacent to the existing culverts and use existing stones to create stacked headwalls similar to the headwalls at the existing culverts.

Bridge Design

The Courthouse Wash Bridge would receive expansion joint repair and the existing bridge rail would be removed and replaced with new two tube curb mounted steel railing. Structural transition railing would also be added to each end to meet current crash standards. The new bridge design would be as close as possible to the existing bridge design.

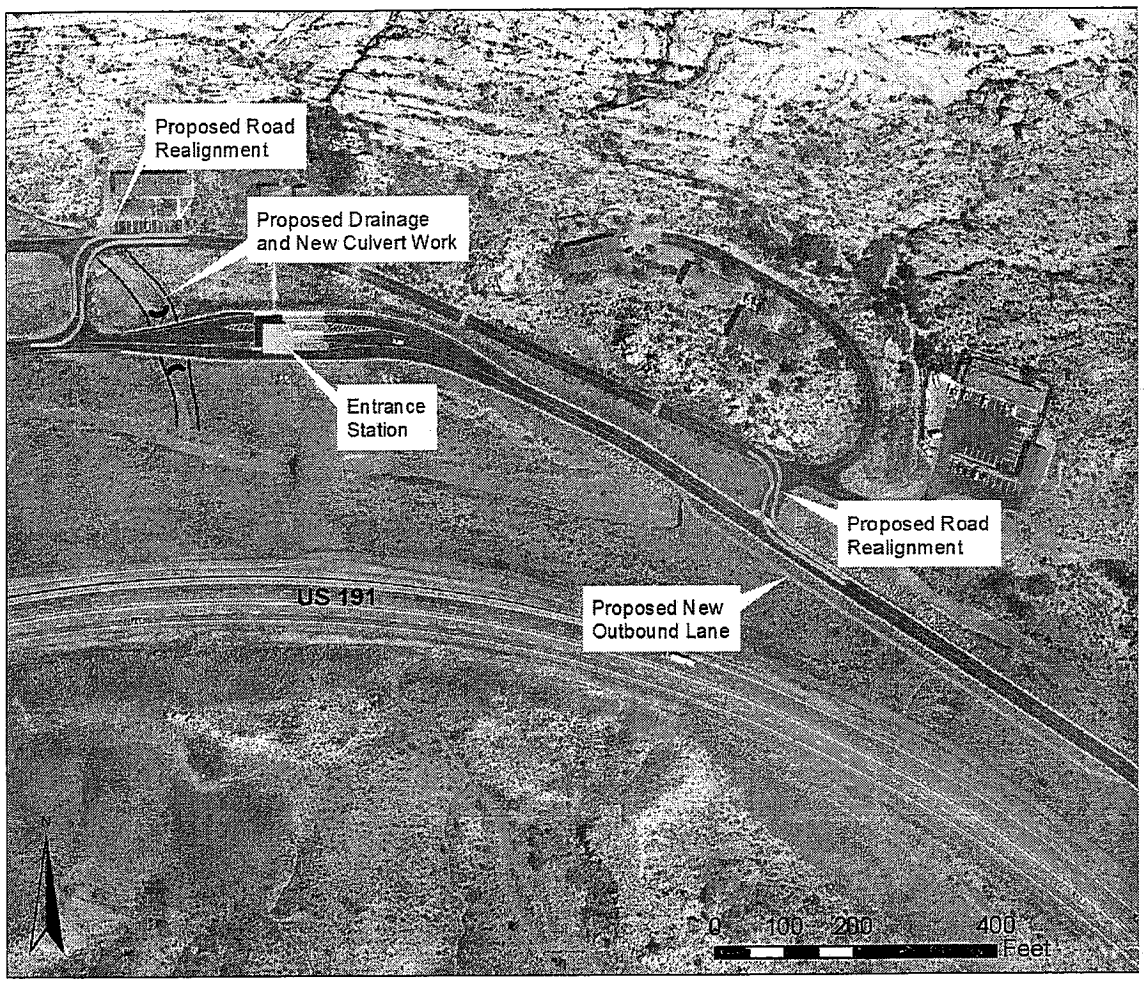
Entrance Lane

This alternative adds a new outbound lane (length ~800 ft) to the entrance road. The existing inbound lane would be designated for shuttle buses only while the

current outbound lane would become the inbound lane. At the maintenance road turnoff, shuttles would turn and use this for entrance into the park.

Refer to Figure 6 for a conceptual plan of proposed improvements at the entrance road. A detailed design plan would be prepared for this area prior to construction.

Figure 5: Entrance Road Conceptual Diagram



Roadside Pull off Areas

This alternative proposes to formally pave to an appropriate length and width approximately 42 pulloffs and close approximately 110 other locations using a variety of treatments such as boulders and ditch, curbing, and bollards. The decision to formalize certain areas took into consideration the existing condition of the pulloff, sight distance and other safety, impacts to the vegetation, and the need and location of pulloffs. The decision to close certain areas took into consideration primarily sight distance and safety at these existing locations.

In part, the need to formally pave more areas along the road stems from the increase in vehicle traffic. Popular existing pulloff areas would be lengthened to accommodate more vehicles at that particular area.

Safety

The existing signs have been replaced in recent years and are in good shape so they are proposed to remain. If funding does not become available for many years, the signs would be reviewed prior to advertisement and a determination would be made at that time whether they need replacement or not. Supplementary speed plaques would be added to existing curve warning signs. Pedestrian crossing signs have been added to all cross walk locations. To meet signage standards stop signs would be relocated closer to the intersection with the Main Entrance Road and Windows Road, Delicate Arch Road, La Sal Mountain View Road, Panorama Point Overlook Road, Salt Valley Overlook Road, and Fiery Furnace Road. All roads would be restriped (centerline and edge stripes) to match the existing layout. Parking areas that are being reconstructed would be restriped to match the existing layout. Four inch width, Type B (waterborne) pavement markings would be used on this project.

Traffic Control and Scheduling

Although every effort would be made to minimize disruption during construction, there would be delays and closures required for work. To the extent practical, work would be scheduled to avoid construction activity and construction related delays during peak visitation times. No holiday or night time work would be allowed. Work would start a half hour after sunrise and end a half hour before sunset. Weekend work (Friday through Sunday) would not be allowed unless authorized in writing by the park superintendent. Construction-related traffic delays resultant from work at pull-offs, parking area and along the road would be limited to a maximum of 30 minutes in each direction.

It is anticipated that much of the pulverizing and paving of the Main Entrance Road and Delicate Arch Road can be accomplished with single lane closures with flaggers and a pilot car. There would be specific areas where full closures would be required to complete the construction including culvert replacements and sub-excavation areas. The Windows Road, Windows Loop Road, Devils Garden Loop Road, La Sal Mountain View Road, Panorama Point Overlook Road, Salt Valley Overlook Road, and Fiery Furnace Road would be closed while construction activities occur in those areas.

A construction schedule would be developed based on the entire project being built under the same contract to determine an approximate overall time required for construction.

Revegetation

The majority of this project includes only minor disturbance of the areas adjacent to the roadway and behind curbs. The contract would specify that the existing shoulder material be windrowed during widening and pulverizing operations. After pavement is placed, the existing shoulder material would be placed to the approximate original position and supplemented with imported shoulder material as required. Other areas with more disturbances (culvert work, new lane near entrance station, and turnaround lanes) would be treated for exotics and revegetated by the Park after construction and in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Closing off informal pulloffs would require treatment for exotics and restoration work and potentially

the installation of temporary barriers to ensure areas become fully rehabilitated. A restoration plan would be prepared and implemented as part of the project.

This alternative is based on preliminary designs and best information available at the time of this writing. Specific distances, areas, and layouts used to describe the alternative are only estimates and could change during final site design. If changes during final site design are inconsistent with the intent and effects of the described alternative, then additional compliance would be completed, as appropriate.

Sustainability

The Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design park facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to maintain and encourage native biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment. This alternative subscribes to and supports the practice of sustainable planning, design, and use of park roads by limiting and mitigating resource impacts and promoting conservation principles by recycling pavement materials.

Mitigation Measures

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects and would be implemented during construction of the preferred alternative, as needed:

General

- All resource protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone identified by the CFHWA and park. Disturbances would be limited to roadsides, culvert areas, and other areas inside the designated construction limits. No machinery or equipment would access areas outside the construction limits.
- A pre-construction meeting would be held to inform construction contractors about sensitive areas, including natural and cultural resource concerns of the park.
- Construction related offices or laboratories would be located outside park boundaries.
- Temporary staging areas for equipment and supplies during construction would use previously disturbed sites, such as pullouts or maintenance boneyards. Trailhead parking areas may be used as construction staging areas in closed areas only.
- Contractors would be required to properly maintain construction equipment (i.e., mufflers and brakes) to minimize noise. Construction vehicle engines would not be allowed to idle for extended periods.
- All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project work limits upon project completion.

Soil, Vegetation, and Water Resources

- A soil treatment and revegetation plan would be developed to rehabilitate disturbed areas.
- Before construction begins, construction limits would be surveyed and staked and may be marked with construction fencing, tape, flagging, snow fencing, or some similar material, as necessary.
- The contractor would prevent or minimize establishment and spread of non-native vegetation and noxious weeds by:
    - Minimizing soil disturbance
    - Pressure washing of vehicles
    - Covering of haul vehicles
    - Limiting vehicle and equipment parking to within construction limits
    - Obtaining all fill, rock, or additional topsoil from the project area or obtaining weed-free material from approved sources outside the park
    - Initiating rehabilitation of disturbed areas within 14 days of the last construction
- Reclaimed areas would be monitored by the NPS annually after construction to determine if reclamation and revegetation efforts are successful.
- The contractor would control dust within the construction limits, including active haul roads, pits and staging areas, at all hours. Water would be applied at the locations, rates, and frequencies ordered by the contracting officer.
- Erosion-control best management practices for drainage and sediment control, as identified and used by the CFHWA, contractor, and National Park Service, would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. These practices may include, but are not limited to, silt fencing, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities. The placement and specific measures used would be dictated to a large degree by the steep topography immediately adjacent to the road in some portions of the project. Silt fencing fabric would be inspected daily during project work and weekly after project completion, until removed. Accumulated sediments would be removed when the fabric is estimated to be approximately 75% full. Silt removal would be accomplished in such a way as to avoid introduction into any flowing water bodies.
- Regular site inspections would be conducted to ensure that erosion-control measures are properly installed and functioning effectively. Erosion-control measures would be left in place at the completion of construction, after which time the park would be responsible for maintenance and removal once vegetation is established.
- Paved ditches would be designed and constructed with permanent features that dissipate flow energy and reduce erosion caused by water runoff.
- Where work is conducted in proximity to the wetland associated with Salt Wash at Wolfe Ranch, best management practices will be implemented to prevent pollutant discharges or other project-related activities from adversely impacting the wetland.

Wildlife

- No construction activities would occur at night or during the dawn to dusk periods to minimize impacts to wildlife that are most active during these times. The specific hours designated for roadwork would be adjusted by the park biologist seasonally for varying day lengths, but would typically be between 7 a.m. and 7 p.m.
- The construction contractor would be required to keep all garbage and food waste contained and removed daily from the work site to avoid attracting wildlife into the construction zone. Construction workers would be instructed to remove food scraps and to not feed or approach wildlife.

Cultural Resources

- Archeological resources in the vicinity of the project area would be identified and delineated for avoidance prior to project work.
- The park would continue to coordinate with the state historic preservation office (SHPO) throughout the course of the project if unknown cultural resources are discovered by the actions of the preferred alternative.
- An archeological monitor is required to be onsite during work of turn-around loop at Devils Garden.
- Should any archeological resources be uncovered during construction, work would be halted in the area and the park archeologist, SHPO, and appropriate American Indian tribes would be contacted for further consultation.
- The Park Service would ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors also would be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction.
- In the event that human remains are discovered during construction activities, all work on the project must stop and the park archeologist contacted immediately. As required by law, the coroner will be notified first. All provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.

Visitor Use and Experience and Park Operations

- Visitors would be informed in advance of construction activities via a number of outlets including the park website, newspaper, radio, at entrance stations, variable message signs, visitor centers, kiosks, shuttle drivers, and at other nearby national parks and other public lands. In addition, information on construction would be publicized in news releases, local newspapers, media outlets, postings in local businesses, visitor bureaus, chambers of commerce, and travel- and tourism-related businesses.
- To the extent practical, work would be scheduled to avoid construction activity and construction related delays during peak visitation times. No holiday or night time work would be allowed without written approval from Superintendent.
- Construction-related traffic delays resultant from work at pull-offs, some parking areas, and along the road would be limited to a maximum of 30 minutes in each direction.

- Full closures of the Devils Garden and Windows parking areas would be limited to 5 weeks maximum but may be shortened due to expedited work schedules.
- Roadwork would generally be limited to Monday through Thursday to minimize impacts to visitors. Modification of work days or hours could be made with prior Park approval. Traffic delays during construction would be kept to a minimum, but travel would be subject to alternating one-way traffic with delays up to 30 minutes between 7 a.m. and 7 p.m.
- To facilitate visitor planning, the status of roadwork and traffic delays would be posted two weeks in advance and would be updated daily.
- The public information officer would coordinate with the contracting officer on the construction schedule and update visitors and information sources periodically on construction work to inform visitors of project status and access.
- Provisions for emergency vehicle access through construction zones would be developed.

Alternatives Considered

Two alternatives were evaluated in the EA: a no action alternative and an action alternative. The no action alternative describes the current condition if no road maintenance was to occur, and if no parking lots were expanded nor pulloffs formalized and turnarounds constructed. The action alternative (preferred alternative) addresses the rehabilitation, restoring and resurfacing of paved road as well as expanding parking, and providing opportunities to move visitors safely through the park.

Environmentally Preferred Alternative

According to the CEQ regulations implementing NEPA (43 CFR 46.30), the environmentally preferred alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferred alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferred alternative."

Alternative B, is the environmentally preferred alternative for several reasons: 1) it would best preserve the natural and cultural features along the road because it implements structural improvements that would provide long-term protection of natural resources adjacent to the road; 2) drainage improvements would reduce the potential for erosion and impacts to water quality and cultural resources; 3) it supports sustainable design concepts and energy efficiency by providing for the reuse of existing asphalt. For these reasons, the preferred alternative causes the least damage to the biological and physical environment and best protects, preserves for the long term the park's cultural and natural resources, thereby making it the environmentally preferable alternative.

The no action alternative is not the environmentally preferred alternative because, although there would be no construction or ground disturbing activities that would

damage previously undisturbed elements of the biological and physical environment 1) it would not protect park natural and cultural resources, as the road would continue to deteriorate without rehabilitation; 2) inadequate drainage could lead to erosion and impacts to water quality and natural resources; and 3) continued high maintenance requirements would not be energy efficient.

Why the Selected Action Will Not Have a Significant Effect on the Human Environment

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

Implementation of the preferred alternative will result in some adverse impacts; however, the overall benefit of the project outweighs the adverse effects. Visitor enjoyment and safety will benefit from measures to improve the condition of the road surface and widen narrower sections to a uniform width. Road upgrades will make travel by vehicles easier and safer for park visitors. The efficiency and cost of park operations will improve from short-term minor adverse impacts to vegetation and soils from ground disturbances. One archeological site is within the boundary of this proposed activity and cannot be avoided. However, mitigation would be implemented to reduce the effect of impacts to archeological resources in the vicinity of the project area. Traffic delays and closures will inconvenience visitors traveling along the road durning construction. Resource protection measures as listing in the mitigation measures section will reduce adverse effects.

The degree to which the proposed action affects public health or safety

The proposed rehabilitation and improvements will address safety concerns associated with deteriorating road conditions. Rehabilitating areas of subgrade failure, removing existing pavement, and repaving the entire road will have a moderate beneficial effect on safety and driving conditions. Road realignments and widening to a uniform width along the entire road also will improve safety by reducing the potential for traffic accidents. Turn-around lanes would help facilitate visitors safely turning into the flow of traffic. Additional parking improvements, via formalizing pulloffs and expanding parking areas, will provide for more parking for cars, large Recreational Vehicles (RVs) and commercial buses. Traffic-control measures will be implemented to protect visitors during construction.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

The preferred alternative will not impact unique characteristics of the area including park lands, prime farmlands, wild and scenic rivers, or ecologically critical areas because these resources do not exist in the project area. The project area does include a persistent, ponded wetland where the Delicate Arch road crosses Salt Wash at Wolfe Ranch. Work proposed for adjoining asphalt sections of the road near the wetland includes stripping, pulverizing, and reapplying existing asphalt to the current road surface. Since the proposed action includes no disturbance of the

concrete road section in contact with the wetland, and includes no disturbance beyond the existing surface of adjoining asphalt road sections near the wetland, the project will not impact the wetland.

The preferred alternative will increase the spatial extent of impervious surfaces and increase the generation of runoff from road surfaces. The preferred alternative also includes upgrades to roadside ditches and culverts to facilitate drainage of runoff from road surfaces and the passage of flows in natural drainage channels affected by the road alignment. Overall, the incremental changes in surface runoff and drainage patterns would be small relative to effects of the existing road system, and additional long-term effects on hydrologic processes would be minor or less. Short-term effects of construction activities on sedimentation and water quality also would be minor or less due to implementation of mitigation measures identified in a Storm Water Pollution Prevention Plan (SWPPP) to be prepared by CFHWA and implemented by the contractor in conjunction with a Utah Pollutant Discharge Elimination System (UPDES) permit issued by the State of Utah.

Archeological resources do exist in one area of the project but the preferred alternative will have mitigation measures in place to reduce effects or to avoid unknown archeological resources.

The degree to which the effects on the quality of the human environment are likely to be highly controversial

Arches began public scoping with a notice released on February 11, 2013 describing the proposed alternatives and soliciting comments or concerns with the proposal to rehabilitate the park's main paved roads. Based on the input received during public scoping, there was no evidence that the effects will be highly controversial. The public also was given an opportunity to comment on the completed EA. At the conclusion of the 30 day public review and comment period, which ended on September 4, 2013, the park had received two comments from the public and no responses from Native American Tribes or other agencies. Given the substance of these comments, there is no evidence that the effect to the quality of the human environment will be highly controversial.

The degree to which the possible effects on the quality on the human environment are highly uncertain or involve unique or unknown risks

Road rehabilitation meets project objectives through implementation of structural improvements that correct damaged and deteriorating road conditions, address public safety, provide for visitor enjoyment, and protect park natural and cultural resources. The anticipated effects on the human environment, as analyzed in the EA, are not highly uncertain or unique, nor were any unknown risks identified.

The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

Rehabilitation of the park's main paved park roads will not result in significant adverse effects to the natural environment, cultural resources, or visitor experience because the project was designed to minimize resource and visitor impacts and resource protection measures were incorporated into the project to further reduce identified adverse effects. In addition, the preferred alternative will provide for the

long term protection of resources and will not set a precedent for future actions that could have significant effects.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

The EA concluded that past, present, and future activities, when coupled with the rehabilitation of the main park road will have local, long-term, moderate or less, adverse cumulative impacts on soils and vegetation. However, there will also be a minor long-term cumulative benefit to soils from the preferred alternative. The contribution to archeological resource cumulative impacts from road rehabilitation will be long-term, minor and adverse. Cumulative impacts to visitor use and experience will be long-term, minor and beneficial. The relative adverse contributions of the preferred alternative to the overall cumulative impacts are predicted to have no significant cumulative effects.

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

In accordance with the Advisory Council on Historic Preservation's (ACHP) regulations implementing §106 (36 CFR 800.8, Coordination with the National Environmental Policy Act), consultation and comment were solicited from the Utah State Historic Preservation Officers (SHPO) and ACHP. As discussed in the EA, archaeological resources will not be adversely affected by implementation of the preferred alternative.

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Section 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the preferred alternative will have *no adverse effect* on archeological resources in Arches National Park. Arches National Park sent a letter stating such to the Utah SHPO office on April 16, 2013 requesting concurrence with this finding. Concurrence with this determination was received from the Utah SHPO on April 22, 2013.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

As part of the EA process, the U.S. Fish and Wildlife Service was contacted with regards to federally- and state-listed species to determine those species that could potentially occur on or near the project area. A letter from the U.S. Fish and Wildlife Service (USFWS) dated February 27, 2013 indicated that because there are no listed species present in the project area, the proposed action poses no issues of concern to the USFWS and no further consultation under §7 of the Endangered Species Act is necessary.

Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment

The action will not violate any federal, state, or local laws or environmental protection laws.

Public Involvement and Native American Consultation

The EA was made available for public review and comment during a 30-day period ending September 4, 2013. To notify the public of this review period, a letter was mailed to stakeholders, Native American tribes, interested parties, and newspapers. Hardcopies were made available at the park Visitor Center, Southeast Utah Group headquarters, and Grand County Library. The EA was posted on the NPS PEPC website at http://parkplanning.nps.gov/arch. Two comments were received. These comments are addressed in the Errata Sheets attached to this FONSI. No comments were received from Native American tribes. The FONSI will be available on the NPS Planning, Environment and Public Comment (PEPC) website at http://parkplanning.nps.gov/arch.

Conclusion

As described above, the preferred alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The preferred alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and minor to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, NPS has determined that an EIS is not required for this project and thus will not be prepared.

Approved:

Laura E. Joss — 10/18/13

Laura E. Joss — Date

Acting Regional Director, Intermountain Region, National Park Service

Errata Sheets

Parkwide Road Maintenance and Modification

Arches National Park

According to NPS policy, substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

Some substantive comments may result in changes to the text of the EA, in which case, they are addressed in the *Text Changes* section of the Errata Sheets. Other substantive comments may require a more thorough explanatory response and are addressed in the *Response to Comments* section. NPS responds to all substantive comments in either or both of these sections.

Of the one letter that was received during public review of the EA, two comments were pulled out and are considered substantive.

Response to Comments

Comment 1 – Strive to eliminate all private autos from the Park to be replaced by "sightseeing" vehicles preferably powered by CNG (Compressed Natural Gas) engines and or even possibly electric or combination thereof.

Response 1 – The preferred alternative strives to assist the park in implementing a shuttle system and therefore reducing private vehicles in the park. The structural design (asphalt thickness) of the road currently does not accommodate shuttles. In order to improve the park road to better support future shuttle operations, the preferred alternative proposes to construct the road with thicker pavement as well as construct a bypass lane for shuttles at the park entrance.

Comment 2 – Minimize and eventually eliminate expenditures for more road/parking lot enhancements.

Response 2 – One objective of this project is to reduce maintenance requirements and costs due to the current damage and deteriorating road pavement and inefficient drainage structures. With the exception of enhancing one specific parking lot in the near future, is the park's intent to eventually eliminate additional road/parking enhancements.

Appendix: Non Impairment Finding

National Park Service's *Management Policies, 2006* require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute impairment, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

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

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;

- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be impairment is based on whether an action would have major (or significant) effects.

Impairment findings are not necessary for visitor use and experience and par operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include geologic resources, soil resources, special status species, archeological resources, and wilderness character.

Fundamental resources and values for Arches National Park are identified in the parks Foundation Document. According to that document, of the impact topics carried forward in this environmental assessment, Colorado Plateau ecosystems (soil and vegetation resources), and cultural features (archeological resources) are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park. These values are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's General Management Plan or other relevant NPS planning documents.

- **Soil Resources** – Arches National Park protects representative examples of Colorado Plateau ecosystems. A component to these ecosystems is soil resources which are fundamental to the integrity of natural ecosystems protected in the park. Important aspects of many soils in the park are the presence, composition, and structure of biological soil crust (biological crust hereafter). Biological crusts are soil-surface assemblages of cyanobacteria, mosses, and lichens that are functionally significant for soil stabilization (Warren 2003), nutrient cycling (Evans and Lange 2003), hydrologic processes (Warren 2003), and mediation of vascular plant establishment (Belnap et al. 2003). Degree of development increases with duration of surface stability and also is affected by soil properties and site conditions. The functional significance of biological crust is countered by its high vulnerability to damage from surface disturbances that can result in long-term reductions of crust structure and functionality (Belnap and Eldridge 2003). In sparsely vegetated landscapes such as those found in the park, disturbance-induced declines in biological crust often are accompanied by accelerated soil erosion and persistent, long-term reductions in surface roughness and associated functions (Miller et al. 2011). Project-related disturbance outside of the existing paved surface would be limited to about 13 acres, of which approximately 9 acres would be new pavement and 4 acres would be temporarily disturbed during construction. This includes approximately 2 acres of new pavement and 2 acres of temporarily disturbed fill slopes associated with construction of new road segments on relatively undisturbed soils near the main park entrance, at Devils Garden, and near the Windows. Soils disturbed and

exposed during construction would be subject to erosion until stabilized or revegetated. Impacts to soils during construction would be local, primarily short-term, minor, and adverse. Impacts to soils attributable to new road segments near the park entrance, at Devils Garden, and the Windows would be local, long-term, minor, and adverse. Planned use of temporary and permanent mitigation measures for erosion control, dust abatement, and revegetation of disturbed areas would reduce the short- and long-term potential for soil erosion and loss. Proposed drainage improvements and correction of deteriorating road edges would reduce the potential for long-term erosion and soil loss. Repairing existing road conditions that currently generate erosion would result in a local long-term minor beneficial effect on soil resources. Closing (or reducing the size) and revegetating approximately 110 informal pullouts totaling approximately 2 acres along the road would reduce the potential for future erosion, restore soil productivity, and result in effects that would be local, long-term, minor, and beneficial. Because net effects of the preferred alternative on soil resources would be local, long-term, minor or less, and adverse, there would be no impairment to soil resources.

- **Vegetation Resources** – Arches National Park protects representative examples of Colorado Plateau ecosystems. A component to these ecosystems is vegetation communities which are fundamental to the integrity of natural ecosystems protected in the park. Vegetation communities in the park consist of varying assemblages of annual and perennial herbs including grasses and broad-leaved plants, numerous types of drought-tolerant shrubs and succulents, and dwarf trees. Vegetation of disturbed roadside areas in the park typically consists of short-lived perennial plants as well as native and exotic annuals that are tolerant of or facilitated by frequent surface disturbance. Common exotic plants in roadside areas include cheatgrass (*Bromus tectorum*) and tumbleweed (*Salsola* spp.). Whether exotic or native, roadside vegetation often is more productive and vigorous than other nearby vegetation because its growth is enhanced by water runoff from impervious road surfaces. Because of repeated disturbance, greater soil moisture availability from run-off, and transport of propagules by vehicles, roads can act as favored establishment sites and dispersal corridors for new exotic plants, facilitating their spread to other settings in the park. Road rehabilitation and improvements would occur primarily within the existing road bench, but incidental effects on vegetation adjacent to the road cut and fill slopes would occur from road and parking lot widening and from installing culverts and drainage improvements. Construction activities would be confined to the smallest area necessary to complete the work and all unpaved areas of disturbed vegetation would be reseeded with native vegetation following construction. Of 152 pullouts along the road, 110 (2 acres total) would be removed, blocked off, and revegetated. Project-related surface disturbance could facilitate the establishment and spread of invasive exotic plants, but several mitigation measures would be implemented to minimize the potential for exotic plant establishment and spread. Revegetation of disturbed areas is expected to take more than one year due to effects of variable seed dormancy and precipitation conditions. Because the preferred alternative would result in net effects on vegetation that would be local, long-term, minor or less, and adverse, there would be no impairment to vegetation resources.

- **Archeological Resources** – Arches National Park contains many archeological sites that are or may be eligible for the National Register of Historic Places. During surveys for the project, one site was located within the Area of Potential Effect (APE) of the proposed vehicle turn-around in the Devils Garden area. Following site documentation, a formal Determination of Eligibility, subsurface testing, and consultation with and concurrence from the Utah State Historic Preservation Officer (SHPO) and potentially affiliated tribes occurred. The site was determined Eligible and a No Adverse Effect determination was made for this site. The action of constructing a turnaround in Devils Garden would affect this site, and cannot be avoided. However, mitigation measures would be implemented to reduce the effect of construction impacts to this site in the vicinity of the project area by identifying and delineating prior to project work to ensure avoidance. Park cultural resources staff would also be available during construction to advise or take appropriate actions should any archeological resources be uncovered during construction. Because the preferred alternative would result in impacts that would be local, long-term, minor and adverse, there would be no impairment to archeological resources.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the preferred alternative.