

**BIOLOGICAL ASSESSMENT  
ARCHES NATIONAL PARK**

**Appendix to the  
TRANSPORTATION IMPLEMENTATION PLAN  
AND ENVIRONMENTAL ASSESSMENT**

Submitted to  
**Arches National Park**  
Moab, Utah

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## **1.0 INTRODUCTION**

### **1.1 Background**

The purpose of this biological assessment (BA) is to address the potential effect of the proposed Arches National Park transportation implementation plan (TIP) on protected species listed as endangered or threatened under the federal Endangered Species Act (ESA). Because federal funds would be used to implement the TIP, consultation with the U.S. Fish and Wildlife Service (USFWS) is required under Section 7(c) of the act. Section 7 ensures that, through consultation (or conferencing for proposed species) with the USFWS, federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species, or result in the destruction or adverse modification of critical habitat.

### **1.2 Early Consultation**

Prior to completion of this BA, AMEC Earth and Environmental, Inc., biologists consulted with Laura Romin and Tom Chart of the Endangered Species Program, U.S. Fish and Wildlife Service, Utah Field Office, regarding the scope of this document. Based on the project description provided and the low likelihood for any measurable adverse effects to protected species, a no-effect letter (NEL) was considered for this project. It was advised, however, that an abbreviated BA that documents justification that the project may affect, but is not likely to adversely affect, listed species would be most appropriate. This would address any doubts of whether there could be any effects and would ultimately expedite the environmental review of this project.

### **1.3 Project Purpose and Need**

At Arches National Park in Grand County, Utah, the National Park Service proposes to implement a program of selected roadside pull off and parking-area improvements, motorized interpretive tours, intelligent transportation system applications, and other strategies. Other strategies include continuing partnerships with regional interests, expanding visitor recreation and interpretive opportunities, traffic-calming improvements, and various visitation- and congestion-management strategies such as promoting off-peak visitation and encouraging regional dispersal of visitation.

The purpose of the action proposed under this project is to ease traffic congestion, protect natural and cultural resources, enhance the visitor experience, improve visitor safety and accessibility, and offer visitors another way to access and experience the park through motorized interpretive tours.

This action is needed for a number of reasons:

- Frequent congestion at parking areas causing visitors to park off paved areas and to damage sensitive soils and vegetation
- Continuing concerns for visitor and traveler safety resulting from excessive speeds on park roads and conflicts with pedestrians seeking access to trails and other park destinations

- Diminished visitor experience caused by crowding along trails to key features and resulting concerns about degradation of natural resources
- Currently no general motorized interpretive or sightseeing tours provided at Arches National Park
- A general absence of coordination among the federal, state, and local agencies and other stakeholders to plan for and resolve regional transportation issues affecting a popular tourist destination

## **2.0 PROJECT DESCRIPTION**

### **2.1 Location**

The project action area is located within Arches National Park approximately 3 miles north of Moab, Utah (refer to Figure 1).

The park is located within the geologic region known as the Colorado Plateau, with elevations ranging from 4,085 to 5,653 feet above sea level. A large percentage of Arches National Park's land surface is exposed bedrock or shallow soil over bedrock with sparse vegetation cover. The arid climate of the area, with only 8 inches of annual precipitation, results in sparse vegetation and poorly developed soils. Large areas of slickrock cover constitute approximately 11 percent of the park and are largely devoid of soil and plant life. The Colorado River runs 10.7 miles along the southeast boundary of the park. There are two primary tributary systems to the Colorado River within the park: the Courthouse Wash drainage in the southwestern portion and the Salt Valley – Salt Wash drainage system draining the central, northern, and eastern portions of the park. These wash areas are relevant to note because they are the areas that provide riparian habitat within the park.

The park road system is the focal point for project activities and provides the public with access to the park along approximately 18 miles of paved roadway. At approximately Mile 4.8, the main park road crosses the main stem of Courthouse Wash. This point is more than 6 miles upstream of the confluence of Courthouse Wash and the Colorado River. The main road runs parallel to and then crosses Salt Valley Wash near Mile 13, more than 10 miles upstream of the confluence with the Colorado River. A branch road from the main road leads to Delicate Arch and crosses the main stem of Salt Wash near the Wolf Ranch site. This crossing is approximately 0.5 miles north of the confluence of Salt Wash with Salt Valley Wash and is about 8 miles upstream of the confluence with the Colorado River.

### **2.2 Project Overview**

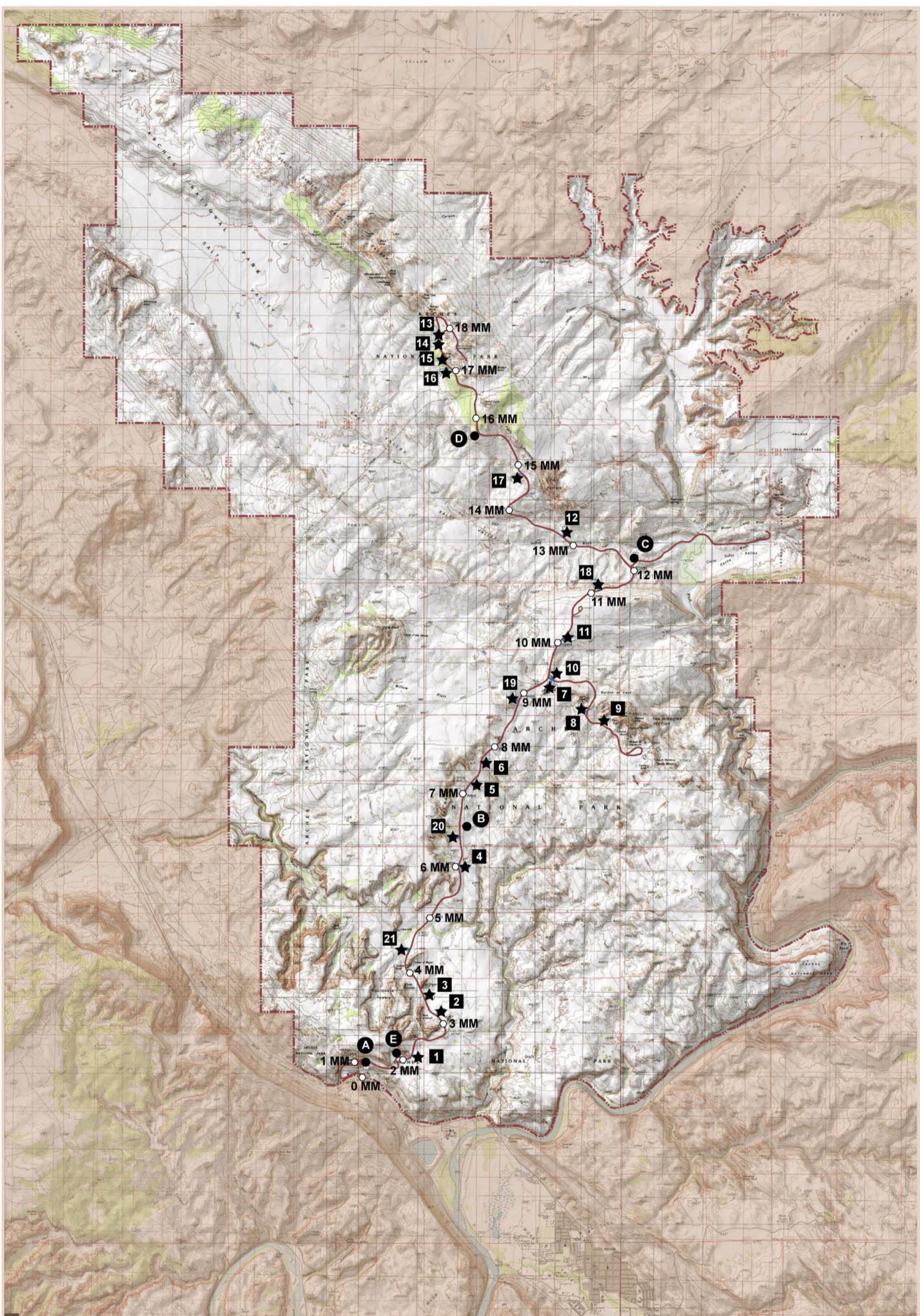
The preferred alternative for the Arches National Park TIP consists of the following elements: park roads and parking-area improvements, roadside pull off area improvement and rehabilitation, traffic calming, motorized interpretive tours (both inside and outside the park), intelligent transportation systems, partnerships with regional interests, protection of ongoing visitor experience and resources, and management of visitation and congestion. These elements are described in the following paragraphs.

#### **2.2.1 Park Roads and Parking Areas**

In several locations, parking would be reconfigured and improvements added to help alleviate congestion, reduce damage to natural resources, and improve overall operations, visitor access, and flow of travel in these areas. The parking-area improvements also would be needed to accommodate tour-bus parking and staging at certain locations in the park.

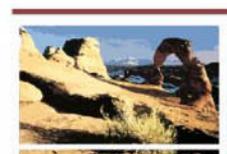


# Roadside Pull-off Recommendations



- ★ Formal Pull-off - Recommendation to Improve
- Social Pull-off - Recommendation to Retain or Minimally Improve
- ⬡ Mile Marker
- 21 Formal Pull-off
- ⓐ Social Pull-off

FIGURE 1





### ***The Windows and Double Arch***

The Windows and Double Arch parking areas would be redelineated through restriping to maximize parking. Redelineation of the parking areas would not result in additional paved areas or habitat loss. If parking areas are redelineated as recommended, there would be an opportunity to return approximately 2,150 square feet (.05 acres) of currently paved area to natural landscape by removing pavement and rehabilitating through protection, raking, and contouring.

### ***Wolfe Ranch and Delicate Arch Trailhead***

A tour bus drop-off and pick-up zone would be delineated through striping and signing within the existing paved surface to accommodate motorized interpretive tours.

### ***Delicate Arch Viewpoint***

Because the Delicate Arch Viewpoint parking area operates at less than full capacity most of the time, space at the west end of the parking lot could be converted to a staging area for motorized tour vehicles that have dropped tour groups off at nearby sites elsewhere in the park (e.g., Wolfe Ranch and Delicate Arch Trailhead, Fiery Furnace, Devils Garden).

### ***Sand Dune Arch***

A new parking area would be developed in the vicinity of the existing trailhead parking pull off. The new parking area would include 15 perpendicular spaces and four larger, parallel spaces for recreational vehicles (RVs) or eight regularly sized vehicles. Construction of the new parking area would result in loss of approximately 12,650 square feet (0.29 acres) of natural landscape, including soils and vegetation. Current off-road use would be eliminated and the area rehabilitated.

The new parking lot would be designed to fit sensitively into the natural setting and landscape, minimizing impacts to soils and vegetation and avoiding impacts to surrounding rock features. The design would strive to balance cut-and-fill earthwork and minimize the level of earthwork to the greatest extent possible. The selected site would require the least amount of grading and earthwork for construction and would help improve sight distance for ingress and egress from the main park road. The proposed area to be improved includes an area that has been previously disturbed by extensive social trailing. In addition, as part of construction of the new parking area, the existing roadside-parking area would be removed and 5,250 square feet (0.12 acres) of currently paved and disturbed areas would be protected and rehabilitated. The proposed improvements would help to minimize new disturbance by focusing access, parking, and trail use in a more confined, formalized area.

### ***Skyline Arch Roadside Parking and Pull Off Area***

The Skyline Arch roadside-parking and pull off area would be improved with five additional outbound parking spaces constructed by shifting the centerline of the main road to the east. Existing inbound parking would be better delineated and striped to discourage perpendicular parking, which is currently a problem at this location. A crosswalk would be located between the inbound and outbound parking areas for safe pedestrian travel.

### ***Devils Garden***

All inbound and outbound wide spots and social pull off areas around the entrance to Devils Garden would be removed and treatments such as boulders, curbing, or fencing would be added to deter social roadside parking occurring in this area. Approximately 6,200 square feet (0.14 acres) of existing paved and compacted social-parking areas would be removed and rehabilitated.

#### **2.2.2 Roadside Pull Offs**

An analysis of existing formal and social roadside pull off areas completed in 2004 for Arches National Park recommended that 26 pull offs be retained of the more than 200 locations being used as social pull off areas in the park. Of these, 21 would be formally improved with paving, extruded curbing, fencing, rocks placed at outside edges of pavement in some cases, and advanced signing. The other five would be retained as unpaved, informal pull offs. The five informal pull off locations would remain in their current condition with minimal improvements that include minor regrading at some locations. Roadside pull off locations throughout the park that either would be formally improved and paved, or would be retained as unpaved informal pull offs, are depicted in Figure 1.

In many cases, the area that has already been affected by social pull off activities is much greater than the area needed to accommodate any formalized pull off improvements. These existing disturbed areas would be rehabilitated through various treatments. Considering the total area to be formalized, as well as the total area to be rehabilitated at the pull off locations, there would be a net habitat loss area of approximately 1,875 square feet (0.04 acres). This net calculation includes 11,900 square feet (0.27 acres) of area already mostly disturbed that would be improved for formal pull off use, minus approximately 10,025 square feet (0.23 acres) of already disturbed area that would be rehabilitated.

Over time, Arches National Park would close the social pull off locations not proposed for formal improvements or proposed to be retained as unpaved, informal pull offs. There are more than 170 of these locations that would be closed to use. Motorists would be prohibited from using these pull off areas through physical barriers such as ditching, placement of boulders, and, in some cases, fencing, signing, and more intensive monitoring and patrolling. In most cases, raking and contouring would be implemented to help speed the process of natural recovery in these areas. These activities would result in rehabilitation of approximately 191,664 square feet (4.4 acres) of currently disturbed or affected landscape at the park.

It is anticipated that pull off improvements and rehabilitation efforts would be implemented within the next 6 years. Implementation of this work would be contingent upon the availability of funding for construction work and for staff time to direct improvements and rehabilitation efforts, to monitor effectiveness, and to intensify patrols.

### **2.2.3 Traffic-Calming Improvements**

Traffic calming includes various strategies and physical improvements to reduce the traveled speed on roadways while maintaining vehicular capacity. The most appropriate locations for physical improvements to implement traffic-calming at the park are in advance of and at intersections, roadside pull offs, pedestrian crossings, and trailhead areas. Traffic-calming applications would include elements such as raised pavement markers, pavement texturing, or rumble strips in advance of these areas. Changes in pavement coloring (different from the asphalt concrete surfaces of the park's existing roadways) in advance of these areas and at pedestrian crossings also could be effective in traffic-calming. Other treatments include signs directing drivers to slow crosswalk stripes and other elements that would attract drivers' attention with minimal to no intrusion on the scenic values of the park.

### **2.2.4 Motorized Interpretive Tours**

If planned, programmed, and implemented appropriately, motorized interpretive tours would encourage expanded visitor experiences and visitation to certain areas in the park while reducing congestion at some of the more crowded features. Potential partnerships between Arches National Park and private tour operators would facilitate the implementation of motorized interpretive tours. The Arches National Park TIP outlines the options for developing such partnerships.

#### ***Facilities and Services Outside the Park***

The TIP recommends that maintenance and operations facilities for motorized interpretive tours be located at a Moab site associated with the private tour operator's business. These facilities would be within the Moab urban area. Necessary maintenance and operations facilities to support a motorized tour service would include the following:

- Tour bus and vehicle storage area (could be indoor or outdoor)
- Tour bus and vehicle maintenance facility with washing station, equipment, and parts storage area and bus barn for repairs
- Management and operations offices and facilities (e.g., work spaces, dispatch facilities, drivers' lockers, lunch room, restrooms)
- Fueling station and fuel storage area
- Ticketing facilities (could be multiple sites and could include availability at visitor centers, hotels, and other sites tied together through Internet communications)
- Park-and-ride facilities (could be multiple sites and could include partnerships with local hotels, employers, etc., to use available parking areas in Moab as park-and-ride or tour bus drop-off and pick-up locations)

These facilities may be or may not be located on federal land and/or may be or may not be funded in full or in part by federal funds. These details are not known at this time. If the National Park Service considers actions or participates as a partner in locating maintenance facilities on lands other than those that are federally managed, appropriate environmental compliance activities consistent with the National Environmental Policy Act and Section 106 NHPA will be undertaken.

### ***Facilities and Services Inside the Park***

Facilities and services that may be needed inside Arches National Park for motorized interpretive tours include time-limited parking and staging areas for visitor drop-off and pick-up at a variety of sites within the park. Recommended sites include the Visitor Center, Moab Fault Pull off, Park Avenue Trailhead, La Sal Viewpoint, Courthouse Towers, Petrified Dunes, Balanced Rock, Windows, Panorama Point, Delicate Arch Viewpoint, Fiery Furnace, Sand Dune Arch, and Devils Garden.

Tour vehicles would be able to use existing pull off configurations and parking areas for tour passenger loading and unloading, and no new facilities would be constructed. To accommodate tour vehicle pick-up and drop-off at these locations, some minor configurations of pavement striping and marking in existing parking and pull off areas may be needed. No new pavement or improvements outside areas already developed would be needed.

#### **2.2.5 Intelligent Transportation Systems**

Intelligent transportation systems (ITS) include the application of computers, communications, and sensor technology to multimodal transportation systems and facilities. When integrated into the transportation system infrastructure, and in vehicles themselves, these technologies help monitor and manage traffic flow; reduce congestion; provide alternate routes to travelers; enhance productivity; and save lives, time, and money.

The recommended actions for ITS improvements in Arches National Park that would be implemented within the next six years include the following:

- Integrate Arches visitor information with Utah's statewide 511 system
- Enhance the existing highway advisory radio (HAR) system
- Enhance the use of closed-circuit television (CCTV) real-time footage of the entrance station for in-park monitoring, security, and traffic counting
- Distribute the full Arches ITS study to regional stakeholders
- Enhance the use of the Arches National Park Web site information to broaden awareness about travel and parking conditions inside the park and to distribute visitation to off-peak times or to less congested areas of the park.

#### **2.2.6 Partnerships with Regional Interests**

The TIP recommends continued partnerships between Arches National Park, other federal agencies such as the Bureau of Land Management (BLM), state agencies such as Utah Department of Transportation (UDOT) and Utah State Parks, and local and regional interests such as the City of Moab and Grand County to ensure more effective long-term management of tourism and visitation patterns and the regional transportation system.

#### **2.2.7 Ongoing Visitor Experience and Resource Protection**

Ongoing monitoring of visitor experience and resource protection indicators and standards at key features within the park would be an important tool for park staff. Ongoing monitoring would require annual operations funding for the park to support the program. The ability for park visitor experience and resource management staff to determine if standards are being met can

only occur through monitoring. Analysis of the results of annual monitoring would assist park staff in making sound decisions related to future visitor use and transportation management strategies and actions.

### **2.2.8 Visitation and Congestion Management**

As park visitation continues to grow and individual features continue to experience overcrowding during peak visitation periods, there will be a need to implement various types of visitation- and congestion-management strategies. The TIP recommends consideration of a number of alternative strategies, including dispersal of regional visitation, promotion of off-peak visitation, promotion of motorized tours, promotion of advanced trip-planning, pricing incentives, increased management of key features during peak visitation such as the popular Fiery Furnace area, and dispersal of visitation to less congested areas of the park.

### **3.0 SPECIES OCCURRENCE AND CRITICAL HABITAT**

A review of literature, park records, and other available resources (NPS 2004; UDWR 2005a; UDWR 2005b; Utah Native Plant Society 2004) current as of October 8, 2005, indicated that the park supports one federal threatened bird species, the bald eagle (*Haliaeetus leucocephalus*) and the following five federal endangered species that include one bird and four aquatic species:

- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- bonytail chub (*Gila elegans*)
- Colorado pikeminnow (*Ptychocheilus lucius*)
- humpback chub (*Gila cypha*)
- razorback sucker (*Xyrauchen texanus*)

#### **3.1.1 Bald Eagle**

USFWS has designated habitat for the bald eagle, including the park and surrounding areas. Eagles use tall riparian vegetation along rivers for roosting and summer nesting.

#### **3.1.2 Southwestern Willow Flycatcher**

Habitat for the willow flycatcher includes riparian areas along the Colorado River and its tributaries.

#### **3.1.3 Colorado Pikeminnow and Razorback Sucker**

USFWS has designated the Colorado River and its floodplain, for the segment adjacent to Arches National Park, as critical habitat for Colorado pikeminnow and razorback sucker (USFWS 2005). This includes the Colorado River and its confluence with Courthouse Wash and Salt Wash to the point where the spring floods of the Colorado back up into these tributaries. The locations of these critical habitats, however, are several miles outside of the area that could be affected by the TIP (Valdez 2005).

#### **3.1.4 Bonytail Chub and Humpback Chub**

Bonytail chub and humpback chub prefer habitat in steep-walled canyons. No steep-walled canyons are located in the park, and critical habitat is not designated within 60 miles upstream or downstream from the park (Chart 2006).

#### **3.1.5 Mexican Spotted Owl**

The Mexican spotted owl (MSO; *Strix occidentalis lucida*) was also considered for inclusion in this BA because the 1997 and 2000 Spotskey and Willey models for MSO habitat indicated several polygons of potential habitat inside Arches National Park. The majority of potential

habitat is along the Colorado River, mainly beyond park boundaries. One linear polygon of potential habitat was identified within park boundaries and was located south of the Delicate Arch Viewpoint, roughly parallel and south of Cache Valley (Whittington 2005).

Several experts were contacted regarding the presence of MSO in Arches. Arches National Park Biologist Charlie Schelz has surveyed much of the park for several years; his wife, Sonya Daw, a seasonal biological technician, has done extensive riparian bird surveys in the Courthouse Wash watershed; and Park Ranger Gary Salamacha is an avid birder in the park. None of these staff has detected the presence of MSO (Schelz 2005). Dr. David Willey, a member of the MSO Recovery Team, has not detected the MSO during two years of his surveys in Arches (Willey 2005).

### **3.1.6 Plants**

According to Larry England of the USFWS, there are no listed plants of concern with regard to the TIP. One listed plant species, *Cycladenia jonesii*, has been found in riparian areas associated with the Colorado River outside the park, but has not been found within the park. Colorado River riparian areas are several miles outside of the project area (Charles Schelz, Southeast Utah Group Ecologist, National Park Service, personal communication to Dave Wood, Southeast Utah Group Planner, National Park Service, 2006).

#### **4.0 ANALYSIS OF EFFECT OF THE ACTION**

Direct and indirect impacts of the preferred alternative for the Arches National Park TIP on the species described in section 3 are described in the following paragraphs. Direct effects are those that occur directly to the species of concern at the time of the action,; indirect effects are those that occur to habitat or that occur indirectly to the species after the action.

##### **4.1 Park Roads and Parking Areas**

Noise and other activities undertaken during construction and rehabilitation of existing and new parking areas may have a short-term (a few days during daylight hours for clearing, grading, and paving) adverse impact on terrestrial wildlife by causing animals, including T&E species, to avoid project areas. New parking areas could reduce the area of habitat.

###### ***Bald Eagles***

No direct impact to bald eagles would occur due to construction. The impact of noise and other construction activities would be minor for bald eagles because this species does not frequent these locations, which are already disturbed by park visitors.

Indirect long-term effects would result from the net loss of as much as 0.25 acre (approximately 6,300 to 9,300 square feet) of bald eagle potential foraging habitat where eagle prey may occur. For bald eagle foraging, the affected area is negligible compared to the remainder of alternate habitat available throughout the park and surrounding public lands. Therefore, indirect effects to bald eagles would be negligible.

###### ***Mexican Spotted Owl***

As stated earlier, the likelihood of MSO existence within the park is low, and thus direct impacts would be very unlikely. The one potential habitat polygon is more than 0.5 miles from any proposed activity.

###### ***Southwestern Willow Flycatcher***

Existing and proposed new parking areas are not within 4,000 feet of willow flycatcher potential habitat (riparian vegetation). This is adequate distance to consider the project to have negligible possibilities of disturbing flycatchers or their habitat. There is no road or parking area construction planned in locations that could directly impact Courthouse, Salt, or Salt Valley washes or their riparian areas. Potential impacts to water quality from increased erosion during construction potentially could indirectly impact riparian vegetation. Use of construction best management practices (BMPs) to control erosion would ensure that this impact would be negligible.

###### ***Aquatic Species***

Direct effects to aquatic species would not occur because there is no road or parking lot construction planned in aquatic habitats. Use of construction BMPs to control erosion would ensure that any effects on surface waters and potential indirect impacts to aquatic species and their associated habitat would be negligible.

## **4.2 Roadside Pull Offs**

Noise and other activities undertaken during construction and rehabilitation of proposed roadside pull offs may have a short-term adverse impact on terrestrial wildlife by causing animals to avoid these areas. This impact would be discountable, however, because it would not have a principal effect at the population level on wildlife resources and habitat. For roadside pull offs, there would be a net-area habitat loss of approximately 1,875 square feet (0.04 acres). This small area is due to compensation by rehabilitation of social pull off areas.

### ***Bald Eagles***

Bald eagles would not be measurably affected during construction or after construction because of the dispersed distribution of pull off construction sites throughout the park, the fact that the majority of these sites are already disturbed and subject to human activity, and because these areas represent an negligible fraction of the total foraging habitat.

Direct long-term adverse impacts at pull off areas would result from loss of a small amount of habitat (1,875 square feet; 0.04 acres) for burrowing and ground-nesting species that potentially would be foraged on by bald eagles. However, this area is already heavily disturbed.

Although impacts on wildlife would be detectable because of displacement and habitat removal, these effects would be concentrated in areas of proposed construction. Effects on individuals of a given species would not have an adverse impact on overall parkwide populations. Furthermore, alternate habitat for these species is available throughout the park. Therefore, the action is not likely to adversely affect bald eagles.

### ***Mexican Spotted Owl***

As stated earlier, the likelihood of MSO existence within the park is low, and thus direct impacts would be very unlikely. The one potential habitat polygon is more than 0.5 miles from any proposed pull-out rehabilitation.

### ***Southwestern Willow Flycatcher***

Pull off locations are at least 1,000 and 2,000 feet from potential riparian habitat, and construction would not affect riparian areas.

### ***Aquatic Species***

The effects of construction and rehabilitation of roadside pull offs will be discountable for listed fish. No fill material would be placed in or removed from any surface waters, and no in-water activities would be required for construction in the pull off areas.

During construction, there would be potential for soil erosion and sedimentation that could indirectly affect fish habitat in the park's streams. Areas of improvement that are located in the vicinity of the park's two streams include formal pull offs 4 and 21, near Courthouse Wash. Use of construction BMPs to control erosion would ensure that any effects on surface waters and their associated listed fish habitat, which lies several miles downstream, would be discountable. There are no plans to withdraw surface water for water-down or dust abatement, and water regimes would not be disturbed.

Importantly, there would be a large decrease in total impervious surface area with full project implementation of pull off rehabilitation, restoring as much as 4.4 acres. Thus, indirect effects to stream habitats due to the negative effects of impervious surface would be greatly attenuated with project implementation. In summary, short-term and long-term direct and indirect impacts on aquatic species would be negligible.

#### **4.3 Traffic-Calming Improvements**

Traffic-calming measures would include advance warning signs, pavement texturing, pavement coloring or markers, rumble strips, and other techniques for slowing traffic in appropriate areas such as pull offs, pedestrian crossings, and trailheads. Such measures would have no effect on aquatic or terrestrial species or their habitats.

#### **4.4 Motorized Interpretive Tours**

Development of a new, centralized operation and maintenance facility to support motorized interpretive tours is recommended. Although the type and magnitude of impacts to fish, wildlife, and habitats would depend on the specific site location, effects are expected to be nonexistent or short-term and would be discountable. Construction would comply with City of Moab policies and regulations governing the protection of wildlife habitat. Motorized tours would have negligible impact to threatened or endangered species.

#### **4.5 Intelligent Transportation Systems (ITS)**

Short-term ITS recommendations would help to monitor and manage traffic flow and reduce congestion at the park's major visitor destinations. Direct and indirect effects on fish, wildlife, or habitat would be discountable.

#### **4.6 Partnerships with Regional Interests**

Because there are no specific improvements recommended by the TIP for implementation under this stage, there would be no effects on fish, wildlife, or habitat at this time.

#### **4.7 Ongoing Visitor Experience and Resource Protection**

Because there are no improvements recommended by the TIP for this initiative, there would be no effect on fish, wildlife, or habitat.

#### **4.8 Visitation and Congestion Management**

No new facilities would be located within critical habitat areas. These strategies would have no effect on threatened or endangered species because they would effectively work to reduce the numbers of vehicles and attenuate impacts to many areas. Any improvements recommended by the TIP (such as picnic tables and shade structures) would be installed in already developed pull off or parking areas. Therefore, there would be no effect on fish, wildlife, and habitat.

Shifting visitor use from traditionally congested areas to traditionally noncongested areas could result in impacts to sensitive species if the traditionally noncongested areas functioned to provide critical habitat and if the shift introduced new disturbance to habitats and species. The specific alternative strategies have not been detailed; however, the development of these

strategies would avoid introducing new disturbance and would avoid critical habitat such as riparian areas.

## **5.0 AVOIDANCE, MINIMIZATION, AND CONSERVATION MEASURES**

This section identifies proposed impact avoidance, minimization, and conservation measures for the preferred alternative, as these items relate to ESA-listed species. These measures would be implemented to reduce the alternative's potential effects on natural resources, cultural resources, visual resources, and visitor use and experience. In addition to the measures identified subsequently, mitigation measures identified in the "Arches National Park General Management Plan/Development Concept Plan and Environmental Assessment" (NPS 1989) are incorporated by reference and will continue to be implemented throughout the park.

As outlined in the Transportation Implementation Plan and Environmental Assessment, to avoid adverse impacts resulting from the proposed project, the following measures would be implemented:

- BMPs would be used for all phases of construction activity, including preconstruction, actual construction, and postconstruction.
- A preconstruction meeting would be held to inform construction contractors about important impact topics and natural resource concerns of the park.
- A rehabilitation plan would be developed in conjunction with the construction documents of the park.
- Disturbance to vegetation would primarily be contained in previously disturbed areas or within narrow construction limits. Whenever practicable, soils and plants affected by construction would be salvaged for use in site restoration. Any introduced plantings would use native species and would strive to reconstruct the natural spacing, abundance, and diversity of native plant species.
- Reclaimed areas would be monitored annually to determine if rehabilitation efforts have been successful or if additional rehabilitation efforts are necessary.
- Ground disturbance and site management would be carefully controlled to prevent undue damage to vegetation and soils and to minimize air, water, soil, and noise pollution.
- Equipment and material staging and storage, as well as vehicle turnarounds, would be confined to existing disturbed areas along park roadways.
- Protective fencing and barricades around construction sites would be provided for safety and to preserve natural and cultural resources adjacent to construction areas.
- Effective stormwater-management measures specific to the construction sites would be implemented, and appropriate erosion and sediment control measures would be in place at all times.
- Construction equipment would be maintained in satisfactory operating condition, be equipped with required safety components, and not be leaking hazardous liquids or emitting hazardous or undesirable fumes at levels greater than allowable local air quality legal limits.
- Care would be taken to ensure that construction equipment and all construction materials imported into the park are free of exotic or noxious plant species. The

construction contractor would be required to wash construction vehicles prior to their entry into the park to remove weed seeds.

- Fugitive dust emissions during construction would be minimized by application of water to the construction areas.
- Through the use of BMPs for runoff control, reconfigured and new parking facilities would be designed to minimize long-term effects on water quality.
- Measures to mitigate the loss of biological soil crusts at the Sand Dune Arch Trailhead parking site would be identified and finalized during the detailed design phase. Measures may include restoration of a partially disturbed soil crust area in another part of the park to compensate for the on-site loss, or using soil crust mined (i.e. excavated and removed from the development site) and re-establishing it on another suitable site in the park.
- Elements of the TIP undertaken in Moab would comply with applicable regulations and policies, including local grading and stormwater regulations, local policies and regulations governing the protection of natural resources, and local and state noise regulations.

## **6.0 CONCLUSIONS**

Based on its evaluation of potential effects, the National Park Service concludes that the Arches National Park Transportation Implementation Plan would result in a discountable probability of take of any listed species. It is further concluded that the TIP may affect, but is not likely to adversely affect, bald eagle, southwestern willow flycatcher, bonytail chub, Colorado pikeminnow, humpback chub, or razorback sucker. The TIP will have no effect on MSOs because it is unlikely that they exist in the park.

The National Park Service concludes that the TIP may affect, but would not likely adversely affect, the designated critical habitats of the Colorado pikeminnow and razorback sucker. The TIP will have no effect on critical habitat for bonytail and humpback chub because there is no designated critical habitat for these species within 60 miles of the proposed project. The TIP will have no effect on critical habitat for MSO because no habitat occurs within area of the proposed project.

## 7.0 REFERENCES

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## Conversation Record

Date September 29, 2005 File no 5-91M-15296-0  
To Mark Pedersen, AMEC Project Arches NP EA  
From Paul West  
Wildlife/Wetlands Biologist  
Salt Lake City, UT  
Tel (801) 965-4672

**Subject** Scope/level of effort for BAs

I contacted Paul regarding his experience with USFWS in preparation of Biological Assessments (BA) for ESA species for road widening projects. I related to him the extensive level of detail required by Oregon and Washington (that deal with listed salmon) and asked about the scope and detail for Utah. He said most of the time for routine types of projects that a 3 to 5 page BA in the form of a letter was typically acceptable. He forwarded me an example that included in-water work and the list of BMPs that would result in a determination of May Effect, Not Likely to Adversely Affect.

## Conversation Record

Date September 30, 2005 File no 5-91M-15296-0  
To Ken Charm, AMEC Project Arches NP EA  
From Laura Romin , USFWS  
Endangered Species Program  
Coordinator  
West Valley City, UT  
Tel (801) 975-3330 x142

**Subject** Arches BA

My contact at USFWS in the Salt Lake City office is Laura Roman. She explained that what we (AMEC) usually delivers as a NEL/BA is what they would expect. I inferred that they are more liberal when defining a no effect call as the threat of environmental law suits is not as great as it is in Washington or Oregon. From our conversation, I do not think that a 2 page BA is appropriate for this project.

It'll probably be next week (Tues) before she can find a BA to send to us, as she will be out of the office on Monday.

She'll probably review this one when it comes in, however, all letters should be addressed to the Field Supervisor, Henry Maddux. All T& E documents come directly to her first, but should be addressed to Henry.















As the nations principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

