

ENVIRONMENTAL ASSESSMENT
RELOCATE RUINS ROAD

Aztec Ruins National Monument
New Mexico

Dear Friends of Aztec Ruins National Monument:

Enclosed is the Relocate Ruins Road Environmental Assessment prepared by the National Park Service. The document proposes to relocate 2,100 feet of the main monument road (Ruins Road, also designated State Road 248 and County Road 2900). This action is needed to mitigate heavy truck traffic on the road. Vibrations from traffic pose a vibrational risk to monument resources. They are of a nature, intensity, and originate at a distance such that they can cause damage to both the historic visitor center and the West Ruin. Two alternatives are discussed.

- 1) The no action alternative which would maintain the status quo of the 2,100 foot section of Ruins Road; and,
- 2) The proposed action alternative in which the National Park Service proposes to relocate approximately 2,100 feet of Ruins Road to the south, and to improve the roadway geometry and safety.

We are providing this document for public review and comment. The public comment period closes 45 calendar days after the date at the top of this letter. If you wish to comment on the environmental assessment, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold from the record a respondent's identity, as allowable by law. **If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment.** We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please address your comments to:

Superintendent
Aztec Ruins National Monument
#84 County Road 2900
Aztec, NM 87401-9715

Sincerely,

Stephanie Dubois, Superintendent

Enclosure

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PURPOSE AND NEED

At Aztec Ruins National Monument (NM), San Juan County, New Mexico, the National Park Service (NPS) proposes to relocate approximately 2,100 feet of the main monument road (Ruins Road, also designated State Road 248 and County Road 2900) (Vicinity Map). This action is needed to mitigate the vibrations + from heavy truck and other traffic on the road. Vibrations from traffic pose a vibrational risk to monument resources. A 1994 vibration study, and additional vibration investigations in 2001 indicated that vibrations from traffic on Ruins Road, especially at the southwest intersection at the park entrance, are a vibrational risk and have possibly contributed to damage to the visitor center, a building that is listed on the National Register of Historic Places. Traffic vibrations are also a risk to the western-most rooms of the West Ruin.

An environmental assessment (EA) analyzes the preferred alternative and alternatives and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), and the NPS's Director's Order (DO) -12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*).

PURPOSE AND SIGNIFICANCE OF THE MONUMENT

Aztec Ruins NM was established in 1923 by Presidential Proclamation 1650 (January 24, 1923, 42 stat. 2295, appended). In recognition of a "ruin of great antiquity and historical interest," President Warren G. Harding established the national monument "with a view to the preservation of said ruin for the enlightenment and culture of the Nation."

The ruin to which the proclamation refers is the West Ruin, a multi-story masonry pueblo of about 450 rooms. Dendrochronology indicates initial building dates of about 1110 through 1120, with repairs and remodeling continuing through the first half of the 12th century. Building style and artifacts recovered indicate that the prehistoric Anasazi culture, or Ancestral Pueblo people as many of their pueblo descendants prefer them to be called, settled and built here. The first inhabitants were closely related to people who lived at Chaco Canyon to the south. But remodeling and artifacts from later use of the pueblo in the 13th century indicate the later people were more closely related to those living at Mesa Verde to the north.

The *General Management Plan/Development Concept Plan/Environmental Assessment* (GMP), approved in September, 1989, describes the significance of the monument, which "lies in its great physical remains, the stories of past cultures that occupied the Animas River valley, and its role in a larger regional prehistoric context. Because of its many unexcavated features, the monument holds great potential for future scientific inquiry into the archeology of the American Southwest. In addition, because of its association with early-day archeologist Earl Morris, the story of Aztec Ruins encapsulates the history of American archeology throughout the Southwest." The monument was named to the World Heritage List in 1987 because of its status as a Chacoan outlier.

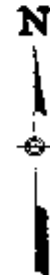
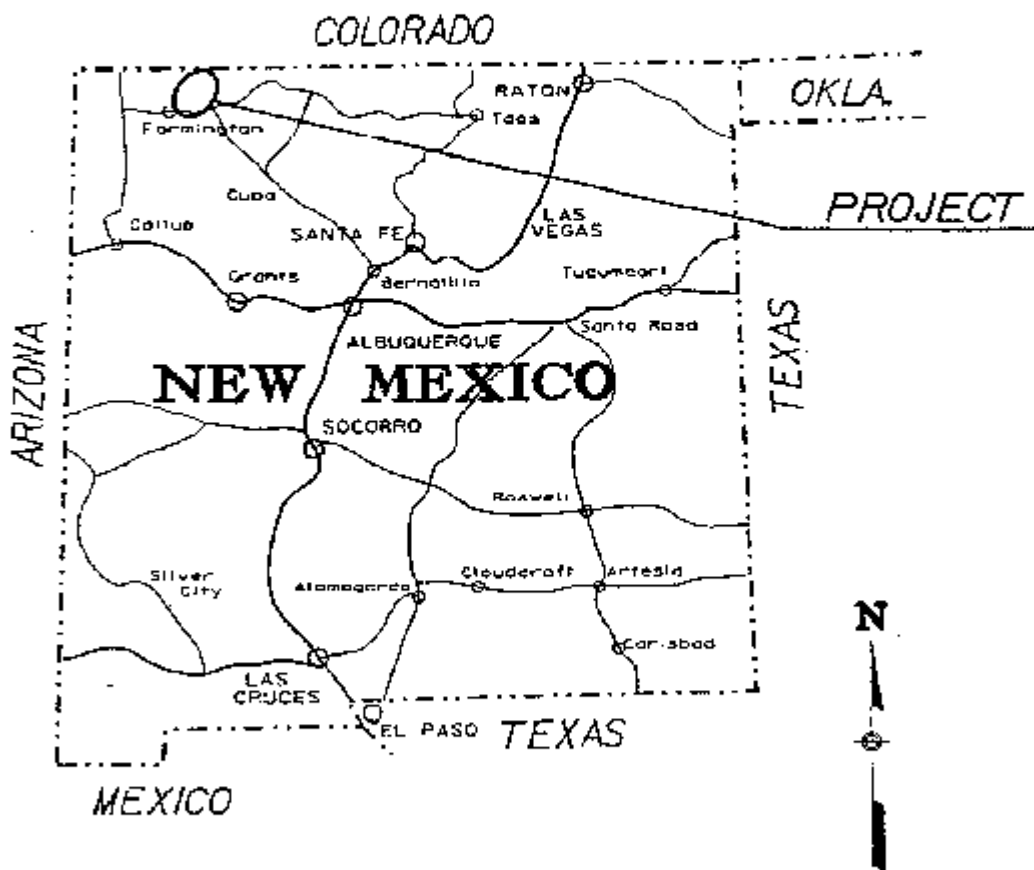
U.S. DEPARTMENT OF INTERIOR NATIONAL PARK SERVICE

PLANS FOR PROPOSED

PROJECT PRA AZRU 10(1)

RUINS ROAD

AZTEC RUINS NATIONAL MONUMENT SAN JUAN COUNTY, NEW MEXICO



PROJECT VICINITY

NPS-DGC / JUNE 02

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BACKGROUND, PREVIOUS PLANNING, SCOPING, AND VALUE ANALYSIS STUDY

Background and Previous Planning: Private residential development north of the monument, on the west side of the Animas River, continues to grow, resulting in increased traffic on Ruins Road not only from residents, but also from oil and gas development. During warmer months of the year, an almost continuous stream of traffic travels past the monument within visual and auditory distance of the visitor center and the West Ruin. In addition to causing almost continuous distractions to visitors, vibrations generated from vehicles, especially larger trucks, may also be damaging delicate archeological resources. Heavy road traffic and the resultant vibrations from traffic that pose a vibrational risk to monument resources were documented in the 1989 GMP, the 1993 Aztec Ruins NM Land Protection Plan, the 1993 Aztec Ruins MN Statement for Management, and the Vibration Investigation (King 1994).

Vibration Study: In 1994, Mr. Kenneth King, a licensed geophysicist specializing in vibration engineering was retained to study the effects of vibration on the archeological and historic structures of the monument. The vibration study determined what vibration frequencies the more pertinent structures are sensitive to, how far some of the sources of vibrations should be kept from the structures, and how much vibration energy is induced to the structures from normal daily activities. The summation of the study developed a suggested vibration “zoning” of the structures. The zoning is a guide for safe future use of vibration sources near the ruins and for the future protection of the ruins.

The vibration study found that vibrations caused by vehicular traffic on Ruins Road pose a vibrational risk to the monument resources and concludes: “The ruins road SW intersection is a vibration risk to the visitor center and a possible risk to the western ruins. The intersection is too heavily traveled by heavy vehicles, its surface is too rough, it is too close to the visitor center and it has a deceleration-acceleration section in the worst place that could be selected for vibration risk to the area.”

Scoping: Scoping is the effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document. Among other tasks scoping determines important issues and eliminates issues not important; allocates assignments among the interdisciplinary team members and/or other participating agencies; identifies related projects and associated documents; identifies other permits, surveys, consultations etc. required by other agencies; and creates a schedule which allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping includes any interested agency, or any agency with jurisdiction by law or expertise (including the US Fish and Wildlife Service, the Advisory Council on Historic Preservation [ACHP], the State Historic Preservation Officer [SHPO], and Indian Tribes) to obtain early input.

The US Fish and Wildlife Service, ACHP, SHPO, and interested Indian Tribes were contacted and invited to participate in the scoping process. Their participation would continue to be requested throughout the life of this planning effort (letter on file at monument headquarters).

Scoping for this project resulted in a number of issues or impact topics to be addressed in this document. These impact topics are described in detail in the Issues and Impact Topics section later in this document.

Value Analysis

Description: A Value Analysis (VA) is a process of arriving at an optimal solution to a complex issue through a structured and reasoned analysis of the factors and functions related to the issue.

Goal: The goal of the VA process is to provide a structured procedure that:

- ensures functional requirements are met,
- all viable alternatives are considered,
- the factors used to evaluate them are sound,
- all alternatives are tested equally against these criteria,
- solutions are cost effective on initial and life-cycle cost basis,
- benefit to cost relationships were considered,
- an independent second opinion was provided, and;
- the rationale for decisions is clearly documented.

The overarching goal is that everyone can feel confident that the best solution, the best value was, in fact, achieved.

Process: The VA process involves the gathering of necessary background material, usually by the office requesting the VA; a VA workshop with a 5-7 person team led by a VA facilitator; an oral presentation of the findings of the VA session upon its conclusion; and a written report of those findings. The composition of the VA Study Team is tailored to meet project requirements, but is typically composed of people familiar with the project, as well as independent team members who bring perspective and insight to the study.

During the VA workshop, the essential functions being met by the project are studied, cost estimates are analyzed, and the entire range of alternative solutions are investigated. Factors are developed for evaluating the alternatives and alternatives are numerically rated, by team consensus, using those factors. The relative importance of the advantages of each alternative are weighed, and a ranking is developed showing how well each of the alternatives addresses the project needs, and recommendations are made by the study team.

Topics for Study: Value Analysis can be applied to decisions of any scale, from broad scope conceptual plans for a park, to decisions concerning building program, to selection of flooring, or to decisions concerning administrative issues such as reorganization of an office. Studies conducted at the Denver Service Center tend to focus on planning and design issues. Value Studies are mandated by law for NPS projects over half a million dollars.

Ruins Road Value Analysis Study: Recognizing the sensitivity of potential cultural resources in the pasture, the sensitivity of known cultural resources (ruins) that are subject to destructive vibrations generated from Ruins Road traffic, and the potential of increased noise impacts to

residents of the trailer park from relocating Ruins Road closer to them, a comprehensive effort was made to identify a relocated road site that would best resolve all issues. This effort resulted in a VA study conducted in December 2001 at the NPS's Denver Service Center, Denver, Colorado. The Value Analysis group included representatives from Aztec Ruins NM, Federal Highway Administration, and the Denver Service Center.

The December VA examined a number of alternatives for relocation of the 2,100 foot-long section of Ruins Road. The preferred alternative in this EA is based on findings and recommendations generated from the December VA site while minimizing impacts to the monument's cultural resources, Ruins Road traffic, and residents of the trailer park.

The proposed action to relocate 2,100 feet of Ruins Road is consistent with the VA findings and is an initial step to preserving monument resources.

ISSUES AND IMPACT TOPICS

Issues: Issues and concerns affecting this proposal were identified from past NPS planning efforts, environmental groups, and input from other state and federal agencies. The major issues are the conformance of this proposal with the 1989 GMP; biotic community issues including special status species (threatened, endangered, species of concern, and designated critical habitats); recreational values; Ruins Road traffic; floodplains and wetlands, air quality; prime and unique farmland; cultural (historic and archeological) resources; socioeconomic values; noise; environmental justice; and effects on monument operations.

Derivation of Impact Topics: Specific impact topics were developed for discussion focus, and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and Executive Orders; 2001 NPS *Management Policies*; and NPS knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Included in this Document

Biotic Communities: The National Environmental Policy Act (NEPA) calls for an examination of the impacts on all components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of all the park's naturally occurring communities. The 2001 NPS *Management Policies*, DO-77 (Natural Resources Management), and the 1993 Aztec Ruins NM Statement for Management, among other NPS and park policies, provides general direction for the protection of the natural abundance and diversity of all the monument's naturally occurring communities. This impact topic addresses all impacted communities. Since the proposed action alternative would involve manipulation of natural resources, biotic communities would be addressed as an impact topic in this document.

Cultural Resources: The 1966 National Historic Preservation Act (NHPA, 16 USC 470 et seq.), the 1916 NPS Organic Act, and NPS planning and cultural resource guidelines call for the consideration and protection of historic properties in development proposals. (The term historic properties refers to all cultural resources, including prehistoric archeological sites, cultural landscapes, ethnographic sites, and historic sites eligible for or listed on the National Register of Historic Places.) The evaluation of potential impacts of proposed actions on significant historic properties is required by NEPA and NHPA, as is attention to the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) for sites where human remains or burials may be present. Alternatives in this document have the potential to impact cultural resources. Therefore, cultural resources is an impact topic that will be addressed in this document.

Archeological Resources: Aztec Ruins NM encompasses a variety of archeological resources. The West and East Ruins, the Hubbard site, nine small mounds, a pueblo known as the Earl Morris Ruin, and numerous remnants of kivas, foundations, walls, terraces, refuse mounds, and middens associated with ancestral Puebloan cultures of the Chacoan period (northwestern New Mexico circa AD 900-1150) and the Mesa Verdean period (southwestern Colorado circa AD 1200-1300) that primarily comprise the prehistoric landscape.

One archeological site LA 1674 is known in the eastern portion of the project area (Mathews 1989). LA 1674 was re-recorded during an archeological survey of the project area conducted in 2000 and 2001, by Moore Anthropological Research under contract to the NPS. The NPS, in consultation with the New Mexico State Historic Preservation Office, has determined that archeological site LA 1674 is eligible for listing in the National Register of Historic Places. Prehistoric materials occur within the project area; therefore archeological resources are analyzed in this environmental assessment.

Historic Structures: Located immediately north of the proposed road realignment, the Aztec Ruins Visitor Center occupies the historic home of Earl Morris. The historic Pueblo revival style Earl Morris house is listed on the National Register of Historic Places. West Ruin Ruins Road is not considered a historic road and the NPS recommends that Ruins Road is ineligible to be listed in the National Register of Historic Places. Concurrence has not yet been received from the New Mexico State Historic Preservation Officer regarding the eligibility of Ruins Road. Because the no action alternative would impact the Earl Morris House, historic structures are addressed as an impact topic in this environmental assessment.

Cultural Landscapes and Ethnographic Resources: Cultural landscapes are broadly defined by the NPS as, “a reflection of human adaptation and use of natural resources and are often expressed in the way land is organized and divided, patterns of settlement, land use, circulation systems, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions” (DO-28: 87).

Cultural landscapes are the result of the long interaction between man and the land. Shaped through time by land-use practices as well as levels of technology, and economic conditions, cultural landscapes provide a living record of an area’s past. The dynamic nature of modern

human life contributes to the continual reshaping of cultural landscapes; making them a good source of information about specific times and places, but at the same time rendering their long-term preservation a challenge.

Three cultural landscapes have been identified at Aztec Ruins NM, a prehistoric designed landscape, a historic designed landscape, and a historic vernacular landscape. The NPS recommends that the prehistoric and the historic designed landscape are eligible to be listed in the National Register. The NPS has not yet completed consultations with the New Mexico State Historic Preservation Officer regarding the eligibility of these landscapes, therefore both cultural landscapes would be treated as potentially eligible for listing on the National Register. Because the proposed action could impact the potentially eligible prehistoric and historic designed landscapes, cultural landscapes will be addressed as an impact topic in this environmental assessment.

Ethnographic resources are defined by the NPS as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (Director’s Order 28, *Cultural Resource Management Guideline*, 191). Ethnographic resources within the project area are associated with the prehistoric designed landscape discussed above and may include objects of cultural patrimony or other objects and features significant to those groups affiliated with the monument. Native Americans traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consult, are concerned about ground disturbance at the monument and the potential discovery of ethnographic resources including human remains, funerary objects, sacred objects, or objects of cultural patrimony. Because of the potential for inadvertent discovery of any human remains, funerary objects, sacred objects, or objects of cultural patrimony, ethnographic resources are analyzed in this environmental assessment. Copies of the environmental assessment will be forwarded to each affiliated tribe or group for review and comment.

Monument Operations: These operations could be affected by the alternatives. Therefore, monument operations will be addressed as an impact topic in this document.

Recreational Values: Providing for visitor enjoyment is one of the elemental purposes of the NPS according to the 1916 Organic Act. The 1989 Aztec Ruins NM GMP established provisions for recreational uses by providing quality facilities for a more meaningful visitor experience. Alternatives in this document have potential to affect recreational values at Aztec Ruins NM. Therefore, recreational values will be addressed as an impact topic in this document.

Impact Topics Dismissed from Further Analysis

Air Quality: The 1963 Clean Air Act, as amended (42 U.S.C. 7401 et seq.), requires federal land managers to protect park air quality, while the 2001 NPS *Management Policies* address the need to analyze air quality during park planning. Aztec Ruins NM was designated Class II under the 1963 Clean Air Act, as amended. Class II areas can have changes in air quality if these changes are the result of moderate, well-controlled growth.

The 1963 Clean Air Act provides that the federal land manager (the assistant secretary for fish and wildlife and parks and the park superintendent) has an affirmative responsibility to protect the park's air quality related values (including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitor health) from adverse air pollution impacts. Section 118 of the 1963 Clean Air Act requires the park to meet all federal, state, and local air pollution standards. Section 176(c) of the 1963 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards.

Should the proposed action alternative be selected, local air quality would be temporarily affected by dust and vehicle emissions. Hauling material and operating equipment during the construction period would result in increased vehicle exhaust and emissions. Hydrocarbons, NO_x, and SO₂ emissions would be rapidly dissipated by air drainage since air stagnation is rare at the project site.

Fugitive dust plumes from construction equipment would intermittently increase airborne particulates in the area near the project site, but loading rates are not expected to be significant. To partially mitigate these effects, such activity would be coupled with water sprinkling to reduce dust.

There would be temporary increases in air pollution during construction of the project, primarily from operation of the construction equipment. To reduce construction equipment emissions, the monument would apply appropriate mitigating measures limiting idling of construction vehicles.

Overall, there would be a slight and temporary degradation of local air quality due to dust generated from construction activities and emissions from construction equipment. These effects would last only as long as construction occurred and the monument's Class II air quality would not be affected by the proposal. Therefore, air quality was dismissed as an impact topic in this document.

Special Status Species (Threatened, Endangered, Species of Concern, and Designated Critical Habitats): The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed threatened or endangered species. NPS policy requires examination of the impacts to state listed threatened or endangered species and federal candidate species.

In a letter dated December 22, 2000 (USFWS Reference No. #2-22-01-I-089) (Appendix A), the US Fish and Wildlife Service (USFWS) provided a list of special status species that may be within the project area or depend on it for critical habitat.

Knowledgeable monument natural resource staff conducted a literature search in monument records and a field survey of the project site for listed species that may live in or depend on the project site for habitat. No such species were found. Should the proposed alternative be implemented there would be no impacts to any listed special status species or designated critical or essential habitats. Therefore, special status species was dismissed as an impact topic in this document.

Environmental Justice: Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. No alternative would have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996). Environmental Justice was dismissed as an impact topic in this document.

Floodplains and Wetlands: Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) require an examination of impacts to floodplains and wetlands; of potential risk involved in placing facilities within floodplains, and protecting wetlands. The 2001 NPS *Management Policies*; DO-2 (Planning Process Guidelines), 1982; and DO-12 (NEPA Guideline), 2001, provide direction on developments proposed in floodplains and wetlands.

No jurisdictional wetlands would be disturbed as the result of the proposed alternative. The west end of the proposed road relocation would just dip into the 100 year floodplain of the Animas River. This is a special flood hazard area inundated by 100-year flood, with no base flood elevations determined.

The 1993 NPS Floodplain Management Guidelines V. Scope, B. *Excepted Actions*, 2. States "This guideline does not apply to certain park functions that are often located near water for the enjoyment of visitors but do not involve overnight occupation. Examples include:" "b. Entrance, access, and internal roads to or within units of the NPS." National Park Service roads are exempt from NPS Floodplain Management Guidelines, therefore compliance with EO 11988 would not be required.

Therefore, floodplains and wetlands was dismissed as an impact topic in this document.

Prime and Unique Farmland: In August, 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effects of their actions on farmland soils classified by the United States Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to the Natural Resource Conservation Service, there are no prime farmlands associated with the project area. Therefore, the topic of prime and unique farmland was dismissed as an impact topic in this document.

Indian Trust Resources: Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in Aztec Ruins NM. The lands comprising the monument are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian trust resources was dismissed as an impact topic.

Socioeconomic Values: Socioeconomic values consist of local and regional businesses and residents, the local and regional economy, and monument concessions. The local economy and most business of the communities surrounding the monument are based on professional services, construction, ranching; and tourist sales and services; the regional economy is strongly influenced by tourist activity. The approved 1989 GMP discussed the socioeconomic environment and impacts extensively.

Local and Regional Economy: Should the proposed action alternative be implemented, short-term economic benefits from construction related expenditures and employment would include economic gains for some local and regional businesses and individuals. Possible disturbance and inconvenience to monument visitors from construction activities would be temporary and only occur during the construction period.

Traffic flow into and out of the monument and project area would be maintained.

There would be short-term benefits to the local and regional economy; local and regional businesses would not be appreciably affected in the long-term. Therefore, socioeconomic values was dismissed as an impact topic in this document.

Noise: The 2001 *Management Policies* states that the NPS would strive to preserve the natural quiet and natural sounds associated with the physical and biological resources of parks. Activities causing excessive or unnecessary unnatural sounds in and adjacent to parks would be monitored, and action would be taken to prevent or minimize unnatural sounds that adversely affect park resources or values, or visitors' enjoyment of them.

In April 2001 a noise study (King, 2001 report on file at monument headquarters) was conducted to determine traffic noise levels on the existing Ruins Road, at the proposed site to relocate the road (170 feet south from the present road location), and at the trailer park south of the proposed road relocation site. A summary of the noise study for the proposed relocation site indicates:

1. The noise from the general traffic is at or below the normal ambient background. The average induced acoustics from traffic on the boundary road at the 170 feet south sites was 50-59 dB. The ambient acoustic background varied from 42 to 54 dB;
2. The maximum traffic noise documented was from very heavy diesel trucks carrying drilling equipment. They gave a maximum reading of 67 dB on line 3 at 170 feet. The higher reading on line 3 was due to the roughness of the road at the intersection;
3. A second highest reading was from a motorcycle with very poor mufflers. It induced a reading of 64 dB at the site of the proposed relocation. The main noise was induced when the motorcycle accelerated from the intersection.
4. Low flying aircraft gave a reading of 72 dB at the 170-foot site but was not included in the data set.

5. The maximum vibrations induced by the traffic were 1.5 mm/sec at 24 Hz; the vibrations were induced by a very heavy truck hitting the rough road at the intersection. The vibration value is below the general sensitivity of humans but not below the sensitivity of the mud adobe of monument structures.

This study shows that the traffic induced noise level at the proposed relocation site 170 feet south from the present road would be in the 50-60 db range which is very near the ambient background for that area. An occasional heavy truck or motorcycle could have a short-term peak of approximately 70 dB. These are values for total open space. Any vegetation or walls would buffer these levels from 6 to 12 dB.

Ambient acoustic minimal background within the Ruins complex, away from traffic and people was 32-45 db.

Relocating 2,100 feet of Ruins Road 170 feet south from its present location would have little measurable change on noise levels to residents at the south border of the monument. Therefore, noise was dismissed as an impact topic in this document.

ALTERNATIVES

Introduction

The alternatives section describes two management alternatives for the relocation of 2,100 feet of Ruins Road. Alternatives for this project were developed to resolve pertinent visitor use, resource, and management issues.

The no action alternative describes the action of continuing the present management operation and condition, it does not imply or direct discontinuing the present action or removing existing uses, developments, or facilities. The no action alternative provides a basis for comparing the management direction and environmental consequences of the proposed action. Should the no action alternative be selected, the NPS would respond to future needs and conditions associated with cultural resource management at Aztec Ruins NM without major actions or changes in course.

The proposed action alternative presents the NPS preferred alternative and defines the rationale for the action in terms of resource protection and management, visitor and operational use, costs, and other applicable factors. All actions described in the preferred alternative are consistent with the approved 1989 GMP and related monument documents.

The environmentally preferred alternative is the alternative that would promote the national environmental policy as expressed in Section 101 of NEPA.

A **summary table** comparing the environmental consequences of each alternative is presented at the end of the alternatives section.

ALTERNATIVE A - NO ACTION

Under the no action alternative, 2,100 feet of Ruins Road would not be relocated; the mainline and termini would remain as is. The monument approach and entrance would remain unchanged in their present location, and improvements to the west parking lot entrance would not be made.

ALTERNATIVE B - PROPOSED ACTION (Figure 1)

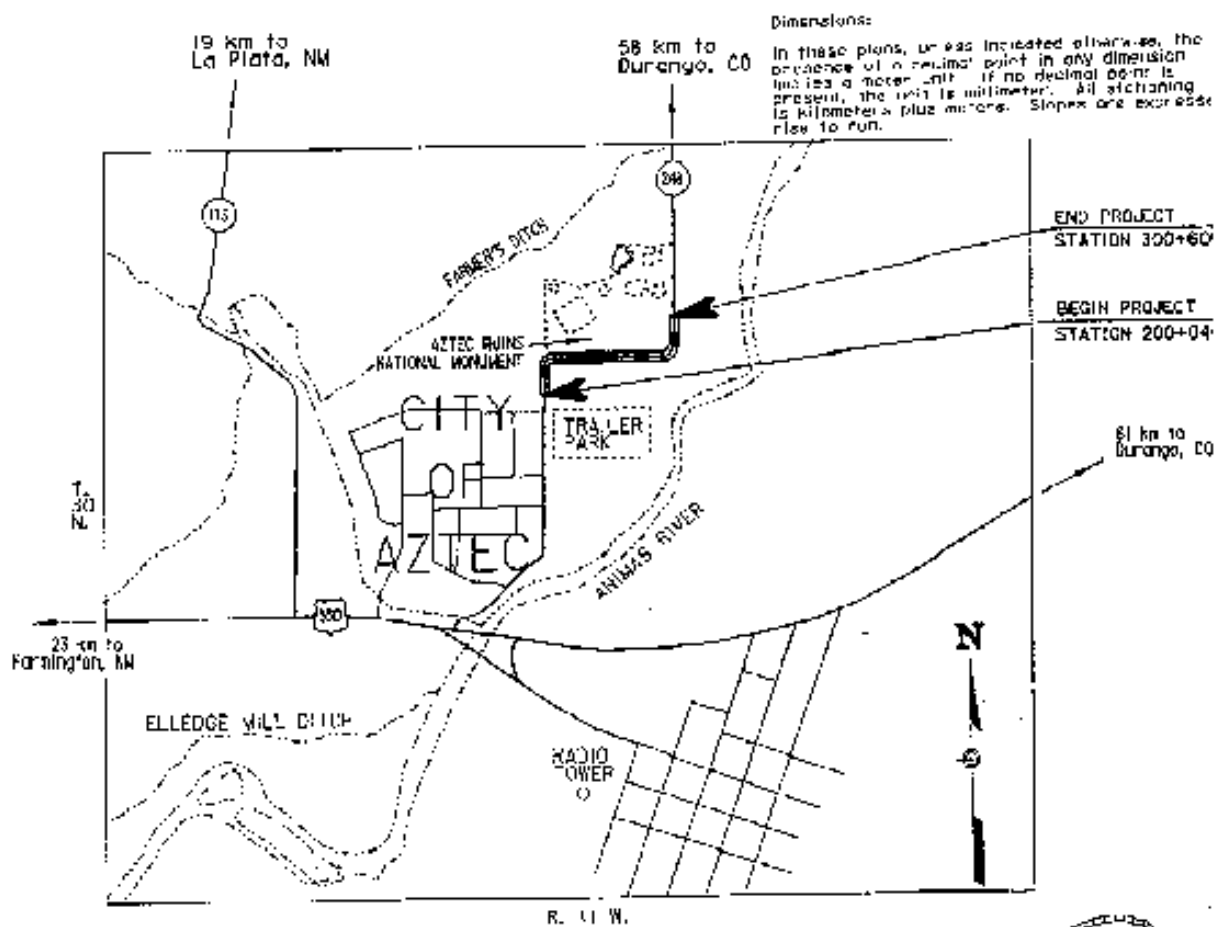
Road Alignment

Mainline and Termini: The proposed action alternative is to relocate 2,100 feet of the main monument road (Ruins Road) approximately 230 feet to the south. This relocated road segment would be reconstructed from the monuments' southern boundary to County Road 2900 on the eastern edge of the monument.

U.S. DEPARTMENT OF INTERIOR NATIONAL PARK SERVICE

PLANS FOR PROPOSED PROJECT PRA AZRJ 10(1) RUINS ROAD

AZTEC RUINS NATIONAL MONUMENT
SAN JUAN COUNTY, NEW MEXICO



PREFERRED ALTERNATIVE

NPS-DSC / JUNE 02

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The western project terminus would consist of a 3-way “T” intersection (located approximately 230 feet south of the existing, similar-type intersection near the monument’s entrance). The existing 15 MPH curve at the eastern terminus (located at the eastern boundary of the monument) would be replaced with a 450 foot radius curve before tying into County Road 2900 immediately north of the curve.

The principal purpose for relocating the road would be to mitigate road vibration generated from traffic, especially heavy trucks. Vibrations from traffic pose a vibrational risk to monument resources. The proposal would also improve the roadway geometry and curve safety.

National Monument Approach: The north leg of the proposed intersection at the western Ruins Road terminus would be the entrance into Aztec Ruins NM. This section of road would follow the alignment of the existing entrance roadway and would reconstruct the road from the new intersection up to the entrance of the visitor center parking area.

Culverts would be placed in irrigation ditches along the route that could also serve as storm runoff drainage. The ditches are very close to the road edge and culverts would mitigate a roadside hazard (vehicles falling into the open ditches) and reduce maintenance costs.

A lockable gate would be installed at the monument entrance to control after hours access to the monument.

RV Parking: The RV exit road from the west parking lot would be relocated approximately 80 feet to the north from its present location.

Maintenance and Gas Well Access Roads: Relocated access roads for the monument’s maintenance facility would be left (north) of mainline station 300+260, and the gas well access would be left of the monument’s approach roadway station 200+070. It would be necessary to relocate these access roads because relocating 2,100 feet of Ruins Road would eliminate the current access. A low standard access to private property (parcel 101-40) extending south from the proposed road alignment would also be constructed.

Road Design

Typical Section: The typical section proposed for the mainline roadway would be 12-foot wide traffic lanes, a 3 foot wide paved shoulder, and a 4:1 or flatter foreslope. These 12-foot wide lanes would comply with all appropriate regulations and standards and ensure that trucks could navigate the monument section safely

The typical section for the approach into the monument would be 11 foot-wide traffic lanes, 2 foot-wide paved shoulders, and 4:1 or flatter foreslope. Concrete curbing would be constructed along the left edge of roadway to carry drainage to asphalt rundowns.

The proposed section for the maintenance access road would be 11-foot wide lanes with a 1-foot wide paved shoulder and 4:1 or flatter foreslope.

Roadway Obliteration: Once the 2,100-foot long segment of Ruins Road would be relocated, the existing roadway through the monument would be obliterated. The existing asphalt pavement would be lifted, removed, and disposed of at approved landfill areas outside the monument. Pavement removal would be either by rotary milling (bo-mag) or ripping with ripper teeth attached to a loader/grader. A strip of existing pavement immediately adjacent to the historic walls would be saw cut and removed by hand to avoid the possibility of damaging the walls. After the pavement would be removed, the existing roadbed would be scarified seeded.

The exit from the parking lot to be obliterated be ripped, recontoured, scarified, and reseeded. The fill that had originally been placed to construct that section should be removed and could be used as fill in the proposed road realignment. The dirt road access to the gas well would be scarified and reseeded.

Signing: The new west end intersection just below the monument entrance would be a 3-way stop sign, with advance “STOP AHEAD” warning signs installed on the southern and eastern legs of the intersection.

Speed limits immediately adjacent to the Aztec Road project area are now posted at 25 MPH. The 25 MPH speed limit signage would be retained as requested by the City of Aztec.

The signing within the monument would be modified to reflect the existing traffic patterns through the monument. Recreational vehicles would be directed past the visitor center parking lot and into the west parking lot. A “DO NOT ENTER” sign would be installed at the end of the RV exit roadway.

Road Maintenance: The City of Aztec or San Juan County would perform maintenance on the relocated Ruins Road segment under a maintenance agreement between the monument and the City of Aztec and/or San Juan County. Either a permanent maintenance easement or a formal land transfer to the City would be required for this work.

Utilities: Utility lines for water, sewer, gas, and overhead electric and telephone would remain in place, but some power poles would be relocated slightly from the path of the proposed roadways. The monument would coordinate utility concerns with the City of Aztec, the City of Farmington, Qwest, Comcast Cable, El Paso Gas, and Public Service Company of New Mexico.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with DO-12, the NPS is required to identify the “environmentally preferred alternative” in all environmental documents, including EAs. The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in Section 101 of NEPA, which considers

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

Generally this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.” (Council on Environmental Quality, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” (40 CFR 1500-1508), *Federal Register* Vol. 46, No. 55, 18026-18038, March 23, 1981: Question 6a.).

The preferred alternative is the environmentally preferred alternative. Relocating 2,100 feet of Ruins Road is necessary to ensure maximum protection of the monument’s cultural resources from vibrations caused by heavy vehicle traffic. Implementing the preferred alternative would help to alleviate current cultural resource impacts with minimum effect on other resources and result in long-term beneficial impacts to cultural resources and management operations.

Staging Area: The staging area for equipment and material storage would be on the new road corridor.

Mitigation Measures of the Proposed Action: Mitigation measures are analyzed as part of the proposed action. These actions have been developed to lessen the adverse effects of the proposed action.

Natural Resources: Construction zones would be identified and fenced with construction tape, snow fencing, or some similar material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone as defined by the construction zone fencing.

Temporary impacts associated with road construction would occur, such as soil and vegetation disturbance and the possibility of soil erosion. In an effort to avoid introduction of exotic plant species, no hay bales would be used. Hay often contains seed of undesirable or harmful alien plant species. Therefore, on a case-by-case basis the following materials may be used for any erosion control dams that may be necessary: rice straw, straws determined by NPS to be weed-free (e.g., Coors barley straw or Arizona winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales. Standard erosion control measures such as silt fences and/or sand bags would also be used to minimize any potential soil erosion.

Silt fencing fabric would be inspected weekly or after every major storm. 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 wetlands or flowing water bodies.

Although soil side-cast during construction would be susceptible to some erosion, such erosion would be minimized by placing silt fencing around the excavated soil. Excavated soil may be used in the construction project; excess soil would be stored in approved areas.

In order to minimize possible impacts to subsurface cultural resources, the proposal calls to construct the relocated road segment on imported soil rather than excavate for road base. Any soil brought into the monument for this project would be from sources approved by monument resource staff as free of noxious weeds and other deleterious material.

Revegetation plantings would use native species from genetic stocks originating within or close to the monument if possible. Revegetation efforts would be to reconstruct the natural spacing, abundance, and diversity of native plant species. All disturbed areas would be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed. The principal goal is to avoid interfering with natural processes.

Throughout the project area soils and vegetation are already impacted to a degree by various human and natural activities. Construction would take advantage of these previously disturbed areas wherever possible. Soils within the project construction limits would be compacted and trampled by the presence of construction equipment and workers. Soils would be susceptible to erosion until revegetation takes place. Vegetation impacts and potential compaction and erosion

of bare soils would be minimized by conserving topsoil in windrows. The use of conserved topsoil would help preserve microorganisms and seeds of native plants. The topsoil would be respread in as near as original location as possible, and supplemented with scarification, mulching, seeding, and/or planting with species native to the immediate area. This would reduce construction scars and erosion.

Some petrochemicals from construction equipment could seep into the soil. To minimize this possibility, equipment would be checked frequently to identify and repair any leaks.

Cultural Resources: Avoidance of archeological site LA 1674 is preferred, however balancing the potential negative impacts to LA 1674 with the continued vibration stresses to the monument's primary cultural resources compels road realignment. In addition, improvement of traffic safety strengthens the argument for relocating the road. Unfortunately, avoidance of LA 1674 is not possible due to the constraints of topography and park boundaries. The only location for the road realignment is the field adjacent to the existing road.

Data recovery at LA 1674 would be destructive in itself because it removes important information from its original context and as such is considered an "undertaking" under regulations of the Advisory Council on Historic Preservation (36 CFR 800). Excavation of cultural resources within the right-of-way may also result in the discovery and disturbance of Native American human remains, funerary items, sacred items, and items of cultural patrimony as defined under the Native American Graves Protection and Repatriation Act. American Indian tribes traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consults, have expressed concern about ground disturbance at the monument. Therefore, data recovery at LA 1674 is not a preferred mitigation strategy for LA 1674.

Although avoidance of the archeological site cannot be attained and excavation is not a preferred action, potential impacts to the site could be mitigated through site burial. In consultation with the New Mexico State Historic Preservation Officer and concerned affiliated tribes, the NPS proposes to mitigate impacts to LA 1674 by burying the portion of LA 1674 within the proposed right-of-way as a preservation technique via the road design. Burial of an archeological site can serve as a form of preservation for that site and can be considered a form of mitigation. Impacts that may result from site burial should be identified, considered, and compared against the positive impacts that such an action may have. Because site burial would make that portion of LA 1674 beneath the road realignment inaccessible for the foreseeable future, it is further recommended that a program of remote sensing be conducted prior to any construction activity to acquire information across the entirety of LA 1674. Limited archeological testing to confirm certain features detected with remote sensing may be appropriate but should be kept to a minimum.

During remote sensing and construction activities, site clearing should be accomplished by hand. Surface preparation should include hand placement of a protective layer to mark the original ground surface and to provide a surface for construction vehicle traffic. Construction equipment should be of a low ground-pressure type operated at one-half speed (NPS, Site Preservation Plan, 2002).

All workers would be informed of the penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property by construction crews. Workers would also be informed of the correct procedures in case previously unknown resources are uncovered during construction activities.

Copies of this environmental assessment will be forwarded to American Indian tribes traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consult for review and comment. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the *Plan of Action Regarding the Treatment and Disposition of Inadvertently Discovered Cultural Items That May Be Excavated or Removed as a Result of Four Planned Projects at Aztec Ruins National Monument* would be followed. The monument staff developed this plan in 2000, in consultation with American Indian tribes as required by the Native American Graves Protection and Repatriation Act (NAGPRA) [Public Law No. 101-601; 25 USC Section 3001-3013; 104 Statutes 3048-3058] and its implementing regulations (43 CFR 10) particularly Sections 10.3 through 10.7.

Sustainability: The NPS has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design NPS facilities to:

- minimize adverse effects on natural and cultural values,
- reflect their environmental setting,
- maintain and encourage biodiversity,
- construct and retrofit facilities using energy-efficient materials and building techniques,
- operate and maintain facilities to promote their sustainability, and
- to illustrate and promote conservation principles and practices through the sustainable design and ecologically sensitive use.

Essentially, sustainability is living within the environment with the least impact on the environment. The proposed action subscribes to and supports the practice of sustainable planning, design, and use of Ruins Road and associated public and administrative facilities

General Construction Schedule and Costs: Construction for this project is expected to last approximately five months, starting in January 2003; however, construction could be delayed by weather conditions or other unexpected events. The cost of this project is expected to be approximately \$707,000 (gross 2002 dollars).

ALTERNATIVES CONSIDERED AND DISMISSED

In addition to the proposed action alternative, the December 2001 Value Analysis Study examined two other road alignment alternatives. Following are the two alignment alternatives that were considered and dismissed and the reasons why they were dismissed.

All three alternatives considered in the Value Analysis relocated the Ruins Road segment approximately 230 feet to the south – away from the Visitor Center and ruins and outside the Vibration Zones identified in the 1994 King report. All alternatives presented a 135-meter radius at the eastern terminus with the idea that the curve and Ruins Road would be signed for 25 MPH. Each alternative placed the new road on fill material to avoid disturbance to known archeological resources in the area.

Alternatives #1 and #2 created a radius at the western side that would allow vehicles to pass through without having to stop. This would eliminate a majority of the vibration caused by acceleration and deceleration at a stop sign. However, both alternatives had the entrance to the monument located in the middle of the radius. Alternative #3 creates a “T” intersection at the western side. This creates a safer intersection with the monument entrance.

The VA team agreed that relocating the road outside of the vibration zones is the only real alternative that would meet the objectives of the project. Additionally, the team agreed that alternative #3 was the only alternative that fully addressed the safety issues. The VA team reviewed the estimates for the three alternatives that were presented and Alternative #3 was found to be the lowest cost alternative.

Table 1
Comparative Summary of Alternatives and Extent To Which
Each Alternative Meets the Project Objectives

Alternative A – No Action	Alternative B – Preferred Alternative
<p><u>Mainline and Termini</u>: 2,100 feet of Ruins Road would not be relocated; the mainline and termini would remain as is.</p> <p><u>National Monument Approach</u>: The monument approach and entrance would remain unchanged in their present location</p> <p><u>RV Parking</u>: Improvements to the west parking lot entrance would not be made.</p> <p><u>Meets Project Objectives?</u></p> <p>No. Resources would continue to be at risk from vibrations; monument approach, RV parking lot exit road, and resource security would not be improved.</p>	<p><u>Mainline and Termini</u>: Approximately 2,100 feet of the main monument road (Ruins Road) would be approximately 230 feet to the south.</p> <p><u>National Monument Approach</u>: The north leg of the proposed intersection at the western Ruins Road terminus would be the entrance into Aztec Ruins NM. This section of road would follow the alignment of the existing entrance roadway and would reconstruct the road from the new intersection up to the entrance of the visitor center parking area.</p> <p>Culverts would be placed in irrigation ditches along the route that could also serve as storm runoff drainage. The ditches are very close to the road edge and culverts would mitigate a roadside hazard (vehicles falling into the open ditches) and reduce maintenance costs.</p> <p>A lockable gate would be installed at the monument entrance to control after hours access to the monument.</p> <p><u>RV Parking</u>: The RV exit road from the west parking lot would be relocated approximately 80 feet to the north from its present location.</p> <p><u>Meets Project Objectives?</u></p> <p>Yes. Relocating Ruins Road would decrease resource risks from vibrations; monument approach, RV parking lot exit road, and resource security would be improved.</p>

**Table 2
SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

Impact Topic	Alternative A No Action	Alternative B Proposed Action
Biotic Communities	The effect of the no action alternative on biotic communities would be negligible and long term. There would be no impairment of monument biotic community resources.	If the proposed action would be implemented there would be short-term negligible impacts to natural resources. With mitigation as described in the “Mitigation” section above, the overall effect of construction and post construction activities of the preferred alternative would have no long-term impact to any natural resources, individual species or populations of animals or plants, or any biotic communities as a whole. There would be no impairment of monument biotic community resources.
Archeological Resources	Minor long-term direct adverse impacts to the West Ruins. Disturbance is confined to a small area with little, if any, loss of important information potential. No impairment of monument resources or values. No impacts to archeological site LA 1674.	Minor to moderate long-term beneficial impacts to West Ruins. Removal of traffic vibration stress risks to West Ruins would preserve and stabilize resources integral to the cultural integrity of the monument. Minor long term direct adverse impacts to LA 1674. Disturbance is confined to a small area with little, if any loss of important information potential. No impairment of the monument’s resources or values.
Cultural Landscapes	No direct or indirect impacts to cultural landscapes within the monument. No impairment to cultural landscape features or values within Aztec Ruins NM .	Negligible long-term direct adverse impacts to the park's prehistoric designed landscape. Minor long-term indirect adverse impacts to historic designed landscape primarily through changes in views. No impairment to cultural landscape resources or values within the park.

Table 2
SUMMARY OF ENVIRONMENTAL CONSEQUENCES
continued

Historic Structures	Minor to moderate long-term direct adverse impacts to historic structures. Impacts would alter a defining feature of the Earl Morris house, but would not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. No impairment to cultural resources or values integral to the monument's cultural identity.	Minor to moderate long-term beneficial impacts to the Earl Morris house. No impairment to cultural resources or values that are integral to the monument.
Ethnographic Resources	No direct or indirect impacts to ethnographic resources within the monument. No impairment to ethnographic resources or values integral to the cultural integrity of the monument.	Negligible long-term direct adverse impacts to ethnographic resources. No impairment to ethnographic resources or values that are key to cultural integrity of the monument.
Recreational Values	Impacts to recreational values would continue to be adverse, minor in intensity, and long-term; there would be no change over existing conditions.	Over the short term, recreational values would be adversely affected by noise, dust, fumes, delays, and construction vehicle traffic along this section of Ruins Road for a very short time. Over the long term visitors would benefit from less noise and minimally less visual intrusion into the monument's cultural resources and an improved road section.
Monument Operations	Under this no action alternative, existing and future impacts to monument operations would continue; these impacts would be adverse, minor in intensity, and long-term.	The preferred alternative would result in a long-term, minor to moderate, directly beneficial impact to monument operations.

AFFECTED ENVIRONMENT

Detailed information on natural, cultural, and other resources in Aztec Ruins NM may be found in the 1989 GMP. A summary of the resources associated with this project follows.

Location, Access, and Setting: Aztec Ruins NM is in San Juan County, northwestern New Mexico, within the Four Corners region; the only area in the United States where four states – New Mexico, Arizona, Colorado, and Utah – border one another. The monument is adjacent to the north edge of the town of Aztec, and approximately 15 miles east of Farmington, New Mexico.

Gently rolling grassy terraces closest to the core of the Aztec Ruins complex are bisected by two major drainages – Farmer Arroyo to the east and Estes Arroyo to the west. Most of the area around Aztec Ruins has been heavily modified since about 1880; cultivated and irrigated farmland, pasture, and orchards surround the monument. The southern monument boundary lies just south of the east-west portion of Ruins Road to be relocated. Residences, a trailer park, and a curio shop lie just outside the southern and eastern monument boundaries.

Monument facilities include a visitor center/administrative complex (lobby, information desk, bookstore, audiovisual room, and museum), staff offices, curatorial storage, and a library/conference room. A maintenance area includes a shop, office buildings, and paved parking area. A mobile home is used for administrative offices. An abandoned building that was a curio shop is near the visitor center and a residence and curio shop/business is leased from the monument by the former owner. Visitor facilities include interpretive trails and a picnic area.

Recreational Values: Traffic on the nearby Ruins Road detracts from the visitor experience, both audibly and visually. The road is visible from the first overlook and from the plaza on the self-guided trail in the West Ruin. The sight of moving traffic is a constant reminder of the modern world that the visitor just came from, and detracts from the setting and experience of thinking about and feeling the meaning and significance of this prehistoric site. The sounds of accelerating and decelerating vehicles, both large and small, is an additional assault on the senses, pulling the visitor away from experiencing the site in a peaceful and thoughtful way. The reconstructed Great Kiva should be a place for quiet contemplation, but the rumble of traffic permeates the building.

Ruins Road: The primary access to the monument is Ruins Road, which is also designated as State Road 248 and County Road 2900. The road was constructed in the 1930s and consists of two 12-foot paved lanes with 1-foot shoulders. Ruins Road from NM 516 to the curve at the monument parking lot entrance is owned and maintained by the City of Aztec. From the parking lot entrance to the curve that turns the road north, Ruins Road is owned by the State of New Mexico and maintained by the City of Aztec. From the curve north, Ruins Road is owned and operated by San Juan County.

Ruins Road is a heavily traveled public road that accommodates a large volume and mix of traffic, including local traffic, commercial and industrial traffic (i.e. heavy trucks), and monument visitors. In 1995 the Average Daily Traffic (ADT) was 700 vehicles; it is projected that by the year 2022 the ADT would be 1,555 vehicles. Approximately 400 feet south of the existing Ruins Road are residences and a

trailer park.

Visitation: Over the last decade, visitation at the monument ranged from 93,894 (1992) to 58,318 (1999). The annual average visitation for the last ten years is 83,549.

West Area Parking: A recreational vehicle parking area is just west on the monument approach road.

Natural Resources: Most of the native vegetation within the pasture (construction zone) has been disturbed by grazing and associated agricultural practices. The pasture vegetative community is predominantly grasses dominated by exotic species. Very little native wildlife occupies the pasture, the most common species are rodents although mule deer are frequently seen.

Cultural Resources:

Archeological Investigations/Resources: The primary archeological resources of Aztec Ruins NM consist of the East and West Ruins, the Hubbard site, the Earl Morris Ruin and the remains of numerous prehistoric room blocks, several multi-story buildings, round depressions, middens, earthworks, and road segments. Additional historic resources include fences, corrals, buildings, and fruit trees. When viewed from the air, the East and West Ruins appear to be mirror images of each other; the West Ruin was excavated by Earl Morris between 1916 and 1922.

A 1994 vibration study and vibration investigations in 2001, indicated that vibrations from traffic on Ruins Road, especially at the southwest intersection at the park entrance, are a vibrational risk and have possibly contributed to damage to the visitor center, a building that is listed on the National Register of Historic Places. Traffic vibrations are also a risk to the western-most rooms of the West Ruin.

Proclaimed a national monument in 1923, the entire park is listed on the National Register of Historic Places. Aztec Ruins NM was recognized as a World Heritage Site in 1987. Although adjustments to the monument's National Register nomination have not kept pace with boundary adjustments since 1920, cultural resources located within later additions to the park are considered eligible for listing on the National Register of Historic Places.

Relocating a segment of Ruins Road would realign the new road section through a field that contains buried and surface deposits of both prehistoric and historic-era archeological materials. In the autumn of 2000 and the summer of 2001, Moore Anthropological Research (MAR) conducted an intensive archeological survey for the NPS to determine the extent, depth, and nature of cultural deposits within the right-of way of the proposed realignment of Ruins Road. One archeological site LA 1674, the Animas River Ruin, was re-recorded (Moore and Nathan 2001).

LA 1674 is a multi-component site with a prehistoric Pueblo II-III habitation and an historic 20th century homestead. The prehistoric component includes at least seven buried and at least partially intact architectural and activity area features including a hearth, a pit, and cobble walls, described by Matthews (1989) and Moore (2001). These prehistoric features may post-date the initial construction of the Aztec Ruins complex by the Chacoan culture. All present and past excavations

of LA 1674 verify post Chacoan occupation and possibly late Chacoan (AD 1075-1150) occupation of LA 1674. It is not known if deeper parts of the site may date to the Chacoan occupation of the nearby Great Houses. Historic features occur on or within about two feet of the present ground surface, except for the dugout and cistern.

The north and south boundaries of LA 1674 have not been determined, but the total site area is estimated to be about 5.4 acres, with a depth of 1.8 meters. About 0.8 acres of the site lie within the proposed realignment right-of-way and would be directly affected by construction. About 4.6 acres would be indirectly impacted by construction. The archeological survey of the corridor in the eastern end of the realignment corridor revealed artifacts in both the upper and subsurface strata. Around 20-35 historic artifacts were recorded in the top stratigraphic layers. The historic artifacts indicate a historic occupation of the area spanning about 120 years. None of the historic artifacts represents a specific feature area. Prehistoric artifacts from subsurface strata all relate to the Pueblo II to Pueblo III use of the area. Most of the prehistoric items recorded were found within the expanded boundary of LA 1674. Artifacts include black-on-white sherds, indented corrugated sherds, black-on-red sherds, flakes, cobble choppers, cores, a broken biface, groundstone and animal bone. Based on ceramic types the site dates from AD 1075 to 1300. No other prehistoric sites were encountered. The NPS recommends and the New Mexico State Historic Preservation Officer concurs that archeological site LA 1674 is eligible for listing in the National Register of Historic Places.

Historic Structures: The visitor center occupies a portion of the historic home/office of Earl Morris, which was listed in the National Register of Historic Places in 1996 (Aztec Ruins Administration Building-Museum). Morris built his home in the far southwest corner of the monument's present-day boundary during 1919-1925, of materials reclaimed from excavations at the West Ruin. The materials and design of the Pueblo revival house were chosen to blend with the nearby West Ruin. Morris lived in the building until the early 1930s. The building was later expanded to serve as a combined visitor center/museum. Today the Earl Morris house contains the monument's visitor center, some interpretive and resource management offices, library, and museum. Ruins Road, providing access to Aztec Ruins NM, does not possess any distinguishing design/constructed elements within the segment under project consideration and it is not a contributing element to either the historic vernacular or historic designed landscape.

Cultural Landscapes: The prehistoric designed cultural landscape is about 320 acres in size and includes all lands within the current authorized boundary of Aztec Ruins NM, including the West Ruin, Hubbard Tri-Wall site, Earl Morris Ruin, East Ruin, and Mound "F" located north of the current alignment of Ruins Road. The NPS recommends that the identified prehistoric designed landscape within the monument boundaries is eligible for listing on the National Register of Historic Places, but has not yet received concurrence from the New Mexico State Historic Preservation Office.

Because natural landforms apparently played an important role in the layout and use of the prehistoric landscape, the true limits of the prehistoric landscape associated with the Aztec Ruins

NM have not been and likely will not be determined. It is probable that the boundaries of the prehistoric designed landscape may extend beyond the authorized boundaries of the park. It is reasonable to consider the Estes Arroyo as a western boundary, the terrace above Farmer Arroyo to the north as a northeastern boundary, and the Animas River as a southeastern boundary of the larger prehistoric designed landscape. There are no visible, above ground features south and east of Ruins Road that are presently identified and documented as features within this landscape, however, this area may reasonably be expected to have been a part of the prehistoric designed landscape. Remote sensing of LA 1674 may identify additional cultural resources in the area, such as remnants of Chacoan roads.

A potentially eligible historic designed landscape is identified north of the project area in the southwestern corner of the monument. The historic designed landscape is 7 acres in size. The boundary of the historic designed landscape follows the monument's 1987 southern boundary from its southwest corner about 600 feet east, turns north at a 90 degree angle for about 120 feet, returns to the west northwest about 400 feet before turning north for 150 feet then west again for about 200 feet to the power line and returning south about 300 feet to meet the 1987 southwest boundary of the monument and intersecting Ruins Road. This historic designed landscape, known as the visitor center complex, includes the lawns and grounds surrounding the historic Earl Morris house, which serves as the present park visitor center, the parking area for the visitor center, the monument entrance and parking lot, and the picnic area to the east of the visitor center. In 2002, the maintenance and former employee residential areas to the east of the picnic grounds, which were included in the original 1997 cultural landscape inventory, were deleted from the boundaries of the historic designed landscape because of significant changes made in this area over the past 50 years. The NPS recommends that the historic designed landscape, with these deletions, is eligible for the National Register of Historic Places, but has not yet received concurrence from the New Mexico State Historic Preservation Officer. The historic designed landscape is outside of the project area and would not be directly disturbed by construction activity. There could, however, be indirect impacts to the historic designed landscape because realignment of Ruins Road could impact the park entry through changes in views.

The historic vernacular landscape includes the agricultural lands with the monument's authorized boundaries. Prior to the establishment of the park, the majority of the land in and around the prehistoric ruins was under cultivation. Over the years, the cultivated acreage was reduced due to development of the national monument and the growing town of Aztec. The historic vernacular landscape is about 320 acres in size and is roughly triangular in shape, with the recommended boundaries at Farmer's Ditch on the north, the Animas River on the east, and the trailer park and residential development on the south. The western boundary of the historic vernacular landscape extends beyond Ruins Road to include agricultural lands to the edge of Farmer's Ditch. Although Ruins Road bisects the historic vernacular landscape, it is not included as a landscape element. Landscape features associated with the historic vernacular landscape include irrigation features associated with Farmers Ditch, waters of the Animas River, irrigated hay fields and pasture, livestock, and the orchard located west of Hubbard Ruin. Lands within and in view of the project area retain a rural character and hold remnants of agricultural elements and features, however, the historic vernacular landscape has lost integrity such as patterns of spatial organization, historic vegetation, associated buildings and structures, land use activities, and cluster arrangements. As a

result of the loss of associated features and specific landscape characteristics, the integrity of the historic vernacular landscape has been compromised and the NPS recommends that it is not eligible for listing on the National Register.

Ethnographic Resources: Ethnographic resources within the project area are associated with the prehistoric designed landscape. The prehistoric designed landscape includes the excavated and unexcavated ruins within the current boundary of the park. Remote sensing within the area of potential effect may identify additional cultural features in the area, such as remnants of Chacoan roads. Ethnographic resources within the project area may include objects of cultural patrimony or other objects and features significant to those groups affiliated with the monument. Native Americans traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consult, are concerned about ground disturbance at the monument and the potential discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony, therefore ethnographic resources are analyzed in this environmental assessment.

Monument Operations: Drivers traveling south on Ruins Road approach the southeast corner beyond the recommended speed limit and fail to negotiate the curve; this is an unsafe turn in the road, where many vehicle accidents have occurred in years past.

Several times drivers have collided with the monument's chain link fence. Although the accidents are minor, the fence usually requires replacement. If the driver is identified, the cost of replacement has been covered by their insurance; if the driver is not identified, the monument pays for the materials and the labor to repair the damaged sections.

ENVIRONMENTAL CONSEQUENCES

Introduction: This section describes the environmental consequences associated with the alternatives. This environmental consequences section is organized by impact topics, which distill the issues and concerns into distinct topics for discussion analysis. These topics focus on the presentation of environmental consequences, and allow a standardized comparison between alternatives based on the most relevant topics. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. National Park Service policy also requires that “impairment” of resources be evaluated in all environmental documents.

General Definitions: The following definitions were used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives:

Impact Intensity

For this analysis, intensity or severity of the impact is as defined as follows:

- *Negligible* – impact to the resource or discipline is barely perceptible and not measurable and confined to a small area. For cultural resources the impact is at the lower levels of detection; for National Register properties, there is no change in any character-defining features of the resource (no adverse effect).
- *Minor* – impact to the resource or discipline is perceptible and measurable and is localized. For cultural resources the impact is slight, but detectable (no adverse effect).
- *Moderate* – impact is clearly detectable and could have appreciable effect on the resource or discipline. For cultural resources the impact is readily apparent; for National Register properties, the effect would not be harmful to those characteristics that qualify the property for inclusion on the National Register (no adverse effect).
- *Major* – impact would have a substantial, highly noticeable influence on the resource or discipline on a regional scale. For cultural resources the impact is severely adverse or exceptionally beneficial; for National Register properties, the effect would be harmful to character-defining features of the National Register site (adverse effect).

Impact Duration

The duration of the impacts in this analysis is defined as follows:

- *Short term* – impacts that last less than one year.
- *Long term* – impacts that last longer than one year.

Direct versus Indirect Impacts

The following definitions of direct and indirect impacts were used in this evaluation:

- *Direct* – an effect that is caused by an action and occurs at the same time and place
- *Indirect* – an effect that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable.

Cumulative Effects: The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on

the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." (40 CFR 1508.7).

Cumulative impacts were determined by combining the impacts of the preferred alternative – to relocate 2,100 feet of Ruins Road and remove 2,100 feet of the existing Ruins Road – with other past, present, and reasonably foreseeable future actions. Therefore it was necessary to identify other ongoing or reasonably foreseeable future actions within Aztec Ruins NM and, if applicable, the surrounding region.

The 1989 Aztec Ruins NM GMP ensures the monument has a clearly defined direction for visitor use and resource preservation for the next decade or longer. Other than the proposed action of relocating Ruins Road, no reasonably foreseeable future development is anticipated for the road, but the monument does anticipate remodeling the visitor center, as well as erecting boundary fencing, improving the monument's irrigation system, and implementing elements of the approved 1989 GMP as funding become available.

Cumulative impacts for this project, Relocate 2,100 feet of Ruins Road, are considered for all alternatives and are presented at the end of each Impact Topic.

Methodology: Overall, the NPS based these impact analyses and conclusions on the review of existing literature and monument studies, information provided by experts within Aztec Ruins NM and other agencies, professional judgments and monument staff insights, the New Mexico State Historic Preservation Officer, and public input.

Impact Assessment for Cultural Resources: In this environmental assessment of effect, impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are intended, however, to comply with the requirements of both NEPA and Section 106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA (36 CFR Part 800, *Protection of Historic Properties*), impacts to cultural resources were identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize or mitigate adverse effects.

Under the Advisory Council's regulations a determination of either *adverse effect* or *no adverse effect* must also be made for affected, National Register eligible cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualify it for inclusion in the National Register, e.g. diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would

occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

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

A Section 106 summary is included in the impact analysis sections for archeological resources, historic structures, cultural landscapes, and ethnographic resources under the preferred alternative. The Section 106 Summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations. Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each cultural resource impact topic analyzed in this environmental assessment of effect.

Archeological Resources Intensity Thresholds:

- Negligible:** There are no perceptible consequences to an archeological site(s) potential to yield important information. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Minor:** **Adverse impact** - disturbance of a site(s) is confined to a small area with little, if any, loss of important information potential. **Beneficial impact** – preservation of a site(s) in its natural state. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Moderate:** **Adverse impact** - disturbance of the site(s) would not result in a substantial loss of important information. For purposes of Section 106, the determination of effect would be *adverse effect*. **Beneficial impact** – stabilization of the site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Major:** **Adverse impact** – disturbance of the site(s) is substantial and results in the loss of most or all of the site and its potential to yield important information. For purposes of Section 106, the determination of effect would be *adverse effect*. **Beneficial impact** – active intervention to preserve the site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Historic Structures / Buildings Intensity Thresholds:

- Negligible:** Impact(s) is at the lowest levels of detection - barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.

- Minor: **Adverse impact** - impact would not affect the character defining features of a National Register of Historic Places eligible or listed structure or building. **Beneficial impact** - stabilization/ preservation of character defining features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, to maintain existing integrity of a structure or building. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Moderate: **Adverse impact** - impact would alter a character defining feature(s) of the structure or building but would not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. **Beneficial impact** – rehabilitation of a structure or building in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, to make possible a compatible use of the property while preserving its character defining features. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Major: **Adverse impact** - the impact would alter a character defining feature(s) of the structure or building, diminishing the integrity of the resource to the extent that it is no longer eligible to be listed in the National Register. For purposes of Section 106, the determination of effect would be *adverse effect*. **Beneficial impact** – restoration in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, to accurately depict the form, features, and character of a structure or building as it appeared during its period of significance. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Cultural Landscapes Intensity Thresholds:

- Negligible: Impact(s) is at the lowest levels of detection - barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Minor: **Adverse impact** - impact would not affect the character defining features of a National Register of Historic Places eligible or listed cultural landscape. **Beneficial impact** – preservation of character defining features in accordance with the Secretary of the Interior's standards, to maintain existing integrity of the cultural landscape. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Moderate: **Adverse impact** - impact would alter a character defining feature(s) of the cultural landscape but would not diminish the integrity of the landscape to the extent that its National Register eligibility is jeopardized. **Beneficial impact** – rehabilitation of a landscape or its features in accordance with the Secretary of the Interior's standards, to make possible a compatible use of the landscape while preserving its character defining features. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Major: **Adverse impact** - impact would alter a character defining feature(s) of the cultural landscape, diminishing the integrity of the resource to the extent that it is no longer eligible to be listed in the National Register. For purposes of Section 106, the determination of effect would be *adverse effect*. **Beneficial impact** – restoration in

accordance with the Secretary of the Interior's standards, to accurately depict the features and character of a landscape as it appeared during its period of significance. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Ethnographic Resources Intensity Thresholds:

- Negligible:** **Adverse impact** - impact(s) would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of beliefs and practices. **Beneficial impact** – there would be no change to a group's body of beliefs and practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.
- Minor:** **Adverse impacts** - impact(s) would be slight but noticeable and would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of beliefs and practices. **Beneficial impact** - would allow traditional access and/or accommodate a group's traditional practices or beliefs. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.
- Moderate:** **Adverse impact** - impact(s) would be apparent and would alter resource conditions, such as traditional access, site preservation, or the relationship between the resource and the affiliated group's beliefs and practices, but the group's beliefs and/or practices would survive. For purposes of Section 106, the determination of effect on TCPs would be *adverse effect*. **Beneficial impact** - would facilitate a group's beliefs and practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.
- Major:** **Adverse impact** - impact(s) would alter resource conditions, such as traditional access, site preservation, or the relationship between the resource and the affiliated group's body of beliefs and practices, to the extent that the survival of a group's beliefs and/or practices would be jeopardized. For purposes of Section 106, the determination of effect on TCPs would be *adverse effect*. **Beneficial impact** - would *encourage* a group's beliefs or practices. For purposes of Section 106, the determination of effect on TCPs would be *no adverse effect*.

IMPAIRMENT OF AZTEC RUINS NM RESOURCES OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, the 2001 NPS *Management Policies* and DO-12, require analysis of potential effects to determine if actions would impair monument 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. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on park and monument resources and values. However, the laws do give NPS 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 NPS management discretion to allow certain impacts within parks, that discretion is limited by statutory requirement that the NPS 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 judgement of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute an impairment. However, an impact would more likely constitute an impairment to the extent it affects 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 to opportunities for enjoyment of the park; or
- identified as a goal in the monument's Master Plan or General Management Plan or other relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park.

A determination of impairment is made for each impact topic within each "Conclusion" section of this EA under "Environmental Consequences".

ALTERNATIVE A - NO ACTION

Biotic Communities: Under this no action alternative, 2,100 feet of Ruins Road would not be relocated. Therefore, there would be no new impacts to any biotic communities under this no action alternative.

Cumulative Impacts: Past development within Aztec Ruins NM and the surrounding region has contributed to increased soil erosion and compaction, vegetation loss, and minor to moderate long-term impacts on the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter, and reproduction sites. Reasonably foreseeable future actions associated with the GMP, such as remodeling the existing visitor center, relocating an existing park residence or removing it and constructing a new one, expanding and enhancing interpretive opportunities for visitors, erecting boundary fencing and improving the monument's irrigation system, have the potential to further impact soils and biotic communities. The potential impacts associated with the GMP would be adverse and range in intensity from minor to moderate, depending upon both the scope of the potential actions and the location. However, because there is no construction associated with this Relocate Ruins Road no action alternative, this alternative would not be a component of such an overall cumulative impact.

Conclusion: The effect of the no action alternative on biotic communities would be negligible and long term. There would be no impairment of monument biotic community resources.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Aztec Ruins NM; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant NPS planning documents, there would be no impairment of the monument's resources or values.

Archeological Resources: Under the no action alternative there would be minor long-term direct adverse impacts to the excavated masonry walls of the West Ruin from continued traffic vibration stresses. The impact would be confined to a small area with little, if any loss of important information potential and the National Register status of the site would be unaffected. If the no-action alternative is implemented and Ruins Road is not realigned, the NPS would continue to monitor the condition of the West Ruin walls. If warranted by conditions, a conservator would provide treatment to the West Ruin walls, such as re-adhering detached plaster. The park preservation staff would continue to treat West Ruin walls by continuing stabilization work (replacing mortar, repairing failed or threatened portions of wall, replacing stones) and backfilling selected rooms.

There would be no ground disturbance related to construction activities and no impacts to site LA 1674.

Cumulative Impacts: Archeological resources at Aztec Ruins NM are subject to damage from vandalism, visitor access, road vibration stresses, natural processes, and disturbance and loss of some archeological resources during excavation, preservation, and construction activities. Past

development in the monument has resulted in the disturbance and loss of some archeological resources during excavation and construction activities. Reasonably foreseeable future actions at the monument, such as erecting boundary fencing and improving the monument's irrigation system could also disturb archeological resources. Road vibration stresses to archeological resources from the existing Ruins Road would continue. Thus, the no action alternative would contribute to the impacts of other past, present, and reasonably foreseeable future actions on archeological resources.

Conclusion: There would be minor long-term direct adverse impacts to the excavated masonry walls of the West Ruin. The no action alternative would contribute to the cumulative impacts to archeological resources in the region. Because there is no major adverse impacts to resources that are integral to the cultural integrity of the monument, there would be no impairment to archeological resources.

Historic Structures: The no-action alternative would continue existing conditions. There would be minor to moderate long-term direct adverse impacts to the Earl Morris house. Traffic vibration would continue to stress the foundations of the historic Earl Morris house, which is vulnerable to cracking when subjected to vibration. The impact would alter a character defining feature of a National Register of Historic Places eligible structure, but would not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. If the no-action alternative is implemented and Ruins Road is not realigned, the NPS would continue to monitor the condition of the Earl Morris house foundation. If warranted by conditions, appropriate specialists would provide treatment to the Earl Morris house.

Cumulative Impacts: In conjunction with the impacts of past, present, and reasonably foreseeable future actions, implementation of the no action alternative would contribute to cumulative impacts on historic structures at Aztec Ruins NM. Past actions at the monument such as adapting the Earl Morris house for use as the park's museum and visitor center have adversely impacted historic structures. Reasonably foreseeable future actions at the monument, such as remodeling the Earl Morris house could disturb historic structures.

Conclusion: There would be minor to moderate long-term direct adverse impacts to historic structures. Because there would be no major impacts to the monument's cultural resources or values there would be no impairment of historic structures resources.

Cultural Landscapes: Implementation of the no action alternative would result in no change to existing conditions and no direct or indirect impacts to cultural landscapes within the area of potential effect.

Cumulative Impacts: In conjunction with the impacts of past, present, and reasonably foreseeable future actions, implementation of the no action alternative would not contribute to cumulative impacts on cultural landscapes at Aztec Ruins NM. Past actions at the monument such as excavation of the ruins and reconstruction of the Great Kiva have adversely impacted the prehistoric designed landscape. More recent activities including development of recreational vehicle parking and location of administrative buildings have also impacted the historic designed landscape.

Reasonably foreseeable future actions at the monument, such as erecting boundary fencing and improving the monument's irrigation system could disturb the historic designed landscape.

Conclusion: There would be no direct or indirect impacts to cultural landscapes within the monument. There would be no impairment to cultural landscape features or values within Aztec Ruins NM.

Ethnographic Resources: The no action alternative would continue existing conditions and there would be no direct or indirect impacts to ethnographic resources. Ruins Road would not be realigned, there would be no disturbance associated with construction activities, and no potential for inadvertent discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony.

Cumulative Impacts: Some ethnographic resources at Aztec Ruins NM have been adversely impacted from past ground disturbances, some of which occurred before establishment of the monument and/or as a result of inadvertent impacts prior to the legal requirements for the protection of ethnographic resources. In conjunction with the impacts of past, present, and reasonably foreseeable future actions, implementation of the no action alternative would not contribute to cumulative impacts on ethnographic resources.

Conclusion: The no action alternative would not directly or indirectly impact ethnographic resources within the monument. There would be no impairment to ethnographic resources or values within Aztec Ruins NM.

Recreational Values: Under the no action alternative, the road would not be relocated thus traffic would continue to detract from the visitor experience, both audibly and visually. The sounds of accelerating and decelerating vehicles would continue to distract the visitor away from experiencing a peaceful and thoughtful site. The reconstructed Great Kiva should be a place for quiet contemplation, but the rumble of traffic would continue to permeate the building.

The sights and sounds of moving traffic would continue to be a constant reminder of the modern world that the visitor just came from, and would continue to detract from the setting and experience of thinking about, and feeling, the meaning and significance of this prehistoric site. There would be no change to recreational values over existing conditions; however, impacts to recreational values would continue to be adverse, minor in intensity, and long-term.

Cumulative Impacts: Past development within Aztec Ruins NM and the surrounding region has contributed to minor to moderate long-term adverse impacts on recreational values in the monument by changing the solitary and emotional experience of the ruins' historic setting. Reasonably foreseeable future actions associated with the GMP, such as remodeling the existing visitor center, relocating an existing park residence or removing it and constructing a new one, expanding and enhancing interpretive opportunities for visitors, erecting boundary fencing and improving the monument's irrigation system, have the potential to further impact recreational values, both negatively and positively and short and long term. The potential impacts associated with the GMP would be adverse and range in intensity from minor to moderate, depending upon the duration, the scope of the potential actions, and the location of activities. Because Ruins Road would not be relocated under this no action alternative, negative impacts to recreational values of

visitors experiencing the ruins would not be abated because noise and other intrusions associated with and generated by Ruins Road traffic would continue. Therefore, the no action alternative would be a component of a minor, long-term adverse cumulative impact to Aztec Ruins NM recreational values.

Conclusion: Impacts to recreational values would continue to be adverse, minor in intensity, and long-term; there would be no change over existing conditions.

Monument Operations: Under this no action alternative, existing and future impacts to monument operations would continue; these impacts would be adverse, minor in intensity, and long-term.

Some drivers traveling south on Ruins Road approach the southeast corner beyond the recommended speed limit and fail to negotiate the curve. Many vehicle accidents have occurred at this corner in years past. Several times drivers have collided with the monument's chain link fence, requiring replacement of the damaged fence sections. If the driver is identified, the cost of replacement has been covered by their insurance; if the driver is not identified, the monument pays for the materials and the labor to repair the damaged sections.

Under the no action alternative, the curve would not be corrected and occasional accidents would be expected to continue as would damage to the monument's chain link fence. In some cases, the monument would continue to bear the material and labor cost of replacing the fence.

Under this no action alternative, barriers to prevent access to the monument after hours would remain unchanged. Such barriers consists of a wooden barrier and chain stretched across the parking lot entrance, which can easily be walked over. Since it is a short walk to the resources, visitors park just outside the chain after hours and casually walk into the park, despite the barrier and signs. Thus, the number of unauthorized after-hours visitors, and associated preservation and safety concerns, would remain unchanged.

Cumulative Impacts: Because no reasonably foreseeable future changes with monument operations involving Ruins Road are anticipated, existing cumulative adverse impacts to monument operations would be expected to continue. These cumulative impacts are adverse, minor, and long-term. Reasonably foreseeable future monument actions, such as implementing the GMP, remodeling the visitor center, erecting boundary fencing and improving the monuments irrigation system, could result in short-term, minor to moderate increases in the workloads of monument staff. However, the no action alternative with this proposal would not relocate Ruins Road so there would be no additional cumulative impacts to monument operations under this alternative.

Conclusion: Under this no action alternative, existing and future impacts to monument operations would continue; these impacts would be adverse, minor in intensity, and long-term.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Aztec Ruins NM; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant NPS planning documents, there would be no impairment of the monument's resources or values.

ALTERNATIVE B - PROPOSED ACTION

Biotic Communities: The entire road relocation project is located either in previously disturbed areas or the long-manipulated area of the pasture. The relocated Ruins Road would be 2,100 feet long with two 12 foot-wide paved travel lanes with 3 foot-wide paved shoulders for a total area of 63,000 sq. ft. The 230 foot-long access road to the maintenance area would be paved with two 11 foot-wide lanes and 1 foot-wide shoulders for a total area of 5,520 sq. ft. An additional area, the construction zone, would be disturbed by construction equipment on either side of the relocated road during construction. The construction zone would extend approximately 8 to 10 feet beyond the road shoulders on each side of the road. Once construction would be completed, the construction zone would be recontoured to preconstruction contours where possible and revegetated.

The existing 26 foot-wide, 2,100 foot length of Ruins Road occupies an area of about 54,600 square feet. Most of this existing road would be obliterated and revegetated thus returning most of the existing road to a road-less condition.

There would be short term and localized increased noise levels during construction. The project would protect natural resources through erosion control and prevention along the road corridor. Throughout areas of soil disturbance, topsoil would be removed and stockpiled prior to construction. This topsoil would be re-spread on the existing road area when the existing road would be removed. The use of stockpiled topsoil would help to preserve microorganisms and plant seeds. Accepted erosion protection measures would be used such as jute mesh, hydro mulch, and sterile annual grass hybrids. Revegetation would proceed according to guidelines established by monument resource staff. Vegetation impacts and potential erosion of bare soils would be minimized by storing and replacing topsoil, seeding, and/or revegetating.

Loss of wildlife would be proportional to the amount of habitat lost. The existing road corridor and pasture have been previously affected through years of close association with vehicles and attendant human activity, and pasture uses, such as cultivation and grazing; any wildlife in the area have unquestionably been long habituated to human activity, noise, and traffic. Larger wildlife would probably avoid the construction zone to a certain extent during construction. During construction some small animals, such as rodents, may be killed or forced to relocate to areas outside the construction zone. Overall populations of affected species might be slightly and temporarily lowered but no permanent negative effects on wildlife would be anticipated.

Overall, if the proposed action would be implemented there would be short-term negligible impacts to natural resources. The overall effect of construction and post construction activities would have no long term impact to any natural resources, individual species or populations of animals or plants or any biotic communities as a whole.

Cumulative Impacts: Past and present development in and around Aztec Ruins NM have contributed to increased soil erosion and compaction, vegetation removal and wildlife disturbance, and the area has experienced a net loss of native biotic communities over the past

decades due to localized development. Wildlife is more restricted by current land uses, the density

of development, and human activity than before the land was developed.

The reasonably foreseeable future actions approved in the Aztec Ruins NM GMP have the potential to produce further disturbance to biotic communities through development and use. Potential impacts would include short-term habitat degradation due to noise and human activity during construction.

The impacts upon biotic communities by implementing the proposals in the GMP would be adverse and range in intensity from minor to moderate, depending upon both the scope of the potential actions and the location. Biotic community impacts associated with both the preferred alternative and future actions would be lessened by requirements to provide mitigation measures during and after construction and the removal of an equivalent amount of existing road and restoring the site to preconstruction conditions.

The cumulative effect of the Relocate Ruins Road preferred alternative on biotic communities, in combination with other past, present, and reasonably foreseeable future actions, would be minor, adverse, and long-term. The adverse impacts of this Relocate Ruins Road preferred alternative would be a minor component of the overall cumulative impact of GMP implementation.

Conclusion: If the proposed action would be implemented there would be short-term negligible impacts to natural resources. With mitigation as described in the “Mitigation” section above, the overall effect of construction and post construction activities of the preferred alternative would have no long-term impact to any natural resources, individual species or populations of animals or plants, or any biotic communities as a whole. There would be no impairment of monument biotic community resources.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Aztec Ruins NM; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument’s general management plan or other relevant NPS planning documents, there would be no impairment of the monument’s resources or values.

Archeological Resources: Implementation of alternative B would result in minor to moderate long term direct beneficial impacts to the West Ruins. Relocation of Ruins Road and removal of traffic vibration risks would preserve and stabilize resources integral to the cultural integrity of the monument.

Implementation of Alternative B would result in minor long-term direct adverse impacts to LA 1674. These impacts would be confined to a small area with little, if any, loss of important information potential. There will be no excavation or cuts into the site with the exception of one required drain. The depth of the drain is restricted to one foot below the surface, within the previously disturbed plow zone, and would impact a very restricted area. Road design features and construction procedures are prescribed to minimize impacts and to preserve the site more effectively (NPS, Site Preservation Plan 2002). The National Register eligibility of the site would be unaffected. LA 1674 is located within the right-of-way of the proposed Ruins Road realignment. Avoidance of archeological site LA 1674 is

preferred, however balancing the potential impacts to LA 1674 with the continued vibration stresses to the monument's primary cultural resources compels road realignment. Due to the constraints of topography and park boundaries, avoidance of LA 1674 is not possible. The preferred action is to avoid impacts to the monument's primary cultural resources through realignment of the road and the only location for the road realignment is the field adjacent to the existing road. Impacts to LA 1674 would be mitigated by stipulations as specified in the site preservation plan for LA 1674, including burying the site through road design, and obtaining baseline data on the site via remote sensing prior to construction activity.

Cumulative Impacts: In conjunction with the impacts of other past, present, and reasonably foreseeable future actions, implementation of alternative B, the proposed action, would contribute to cumulative impacts on archeological resources in the area. Archeological resources at Aztec Ruins NM are subject to damage from vandalism, visitor access, excavation, traffic vibration stresses, and natural processes occurring perhaps before establishment of the monument and/or as a result of inadvertent impacts prior to the legal requirements for archeological survey, site protection and mitigation. Reasonably foreseeable future actions at the monument, such as erecting boundary fencing and improving the monument's irrigation system, could also disturb archeological resources.

Conclusion: Under alternative B there would be minor to moderate direct long-term beneficial impacts to West Ruin. Minor direct long-term adverse impacts would occur to archeological site LA 1674. There would be no major adverse impacts to a resources or values that are key to the natural or cultural integrity of the monument and no impairment of the monument's cultural resources or values.

Section 106 Summary: In accordance with the Advisory Council on Historic Preservation's regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act, the NPS proposes and the New Mexico State Historic Preservation Office concurs that alternative B, the preferred alternative, would have an effect on an eligible historic property, but the effect would not be adverse. Site LA 1674 would be protected according to stipulations specified in the site preservation plan and agreed to by the New Mexico State Historic Preservation Office. These stipulations include burying the site through road design and obtaining baseline data on site LA 1674 via remote sensing prior to construction activity. The determination of no adverse effect on historic properties was derived by weighing minor adverse impacts that would occur to site LA 1674 against minor to moderate beneficial impacts to resources integral to the cultural integrity of Aztec Ruins NM.

Historic Structures: Implementation of alternative B would have minor to moderate long-term direct beneficial impacts to the Earl Morris house. Relocating the road away from the Earl Morris house would reduce traffic vibration stresses to the historic house's foundation. Reducing traffic vibration stresses would stabilize and make possible a compatible use of the property while preserving its character defining features.

Cumulative Impacts: In conjunction with the impacts of past, present, and reasonably foreseeable future actions, implementation of Alternative B would not contribute to cumulative impacts on historic

structures at Aztec Ruins NM. Past actions at the monument such as adapting the Earl Morris house for use as the park's museum and administrative offices have adversely impacted historic structures. Reasonably foreseeable future actions at the monument, such as remodeling the Earl Morris house could disturb historic structures.

Conclusion: Implementation of alternative B would result in minor to moderate long-term beneficial impacts to historic structures. There would be no major adverse impact to resources or values whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Aztec Ruins NM or that are key to the cultural integrity of the park. There would be no impairment of cultural landscape resources or values within Aztec Ruins NM.

Section 106 Summary: In accordance with the Advisory Council on Historic Preservation's regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act, the NPS proposes that the Alternative B would result in a finding of no adverse effect to historic properties. The action would maintain the integrity of the Earl Morris house which is listed on the National Register of Historic Places.

Cultural Landscapes: Implementation of alternative B would result in negligible direct long-term adverse impacts to the prehistoric designed landscape. The new alignment of Ruins Road, approximately 200 feet south of its current location, would locate the road closer to the southern margins of the cultural landscape. The new alignment would not affect character defining features of a potentially National Register eligible landscape.

Alternative B would result in minor indirect long-term adverse impacts to the historic designed landscape. Changing the road's location would move the road from its close proximity to the monument's historic designed landscape features and would reconfigure the park's entry, which would result in changes in views. Although Ruins Road, itself, is not a contributing element, the park entry off of Ruins Road is a contributing feature to the identified historic designed landscape. Changes to the monument entry would not affect the character defining features of the historic designed landscape.

Implementation of alternate B would have a minor long-term indirect impact on the vernacular designed landscape by enclosing the open irrigation ditches near the new route. This would affect the appearance but not the function of the ditches. Such minor long-term impacts would not be adverse, because the NPS has recommended that the historic vernacular landscape is not eligible for listing in the National Register; there would be no appreciable change in integrity of the landscape.

Cumulative Impacts: Combined with other past and foreseeable projects, such as boundary fencing, implementation of Alternative B would contribute to cumulative impacts on cultural landscapes in Aztec Ruins NM. The prehistoric designed landscape has been adversely impacted from past agricultural activity as well as from past excavation, restoration, and construction activities, some of which may have occurred before establishment of the monument and/or as a result of inadvertent impacts prior to the legal requirements for archeological survey, site protection, and mitigation. The historic designed landscape has been adversely impacted from past

construction activities such as fencing and changes in viewshed.

Conclusion: Negligible to minor long-term direct adverse impacts to cultural landscapes would occur particularly through changes in historic designed views from the monument entry and through a new road alignment on the southern margins of a potentially eligible cultural landscape. There would be no major adverse impacts to resources or values whose conservation is necessary to fulfill specific purposes identified in the establishing legislation of Aztec Ruins NM or that are key to the cultural integrity of the park, nor would there be major adverse impacts to resources or values that are identified as a goal in the park's general management plan or other relevant NPS planning documents. Therefore, there would be no impairment of cultural landscape resources or values within Aztec Ruins NM.

Section 106 Summary: In accordance with the Advisory Council on Historic Preservation's regulations (36 CFR 800) the NPS proposes that implementation of Alternative B, the preferred action, would result in a determination of no adverse effects to historic properties. Impacts would not affect the character defining features nor diminish the integrity of a potentially eligible cultural landscape to the extent that its National Register eligibility is jeopardized.

Ethnographic Resources: Implementing alternative B would have negligible direct long-term adverse impacts to ethnographic resources. Impacts to ethnographic resources would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated people's beliefs and practices. Ethnographic resources would be protected to the greatest extent possible through stipulations proposed in the site preservation plan for LA 1674, including road design eliminating cuts and excavations and by burying possible ethnographic resources via road design. The likelihood for inadvertent discovery and disturbance of Native American human remains, funerary items, sacred items, and items of cultural patrimony as defined under the Native American Graves Protection and Repatriation Act is reduced due to road design and site preservation as outlined in the Site Protection Plan.

Cumulative Impacts: Combined with the impacts of other past, present, and reasonably foreseeable future actions, negligible long-term cumulative impacts to ethnographic resources would be expected. Some ethnographic resources in the area have been adversely impacted from past excavation, agricultural and construction activities, and visitor use pressures. Other foreseeable future construction projects such as boundary fencing and irrigation improvement also have the potential to impact ethnographic resources. In the unlikely event that human remains, funerary objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the *Plan of Action Regarding the Treatment and Disposition of Inadvertently Discovered Cultural Items that May be Excavated or Removed as a Result of Four Planned Projects at Aztec Ruins NM* would be followed.

Conclusion: Alternative B would have negligible direct long-term impacts to ethnographic resources. There would be no major, adverse impacts to ethnographic resources or values whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or is key to the natural or cultural integrity of the monument and no impairment of the monument's

ethnographic resources or values.

Section 106 Summary: In accordance with the Advisory Council on Historic Preservation's regulations (36 CFR 800) implementing Section 106 of the National Historic Preservation Act, the NPS proposes that implementing Alternative B would result in a determination of no adverse effect to ethnographic resources. This determination is based on an assessment of the potential impacts to ethnographic resources in the project area, coupled with the mitigating measures of avoiding ethnographic resources through remote sensing prior to construction and via road design (NPS, Site Preservation Plan, 2002).

Recreational Values: If the proposed action is implemented, the 2,100-foot section of Ruins Road would be relocated; traffic would be further from the ruins. Visual impacts of traffic on the road would not be diminished appreciably but audible distractions to visitors would be reduced. To a greater extent than under present conditions, visitors would experience a peaceful and thoughtful site. The reconstructed Great Kiva would be more of a place for quiet contemplation and inward reflections on the meaning and significance of this prehistoric site.

Relocating the west area RV parking area entrance road approximately 80 feet to the north from its present location would correct the existing operational problems by providing a slightly wider paved width and a slightly flatter turning radius out of the parking area. This would provide for a safe avenue of entrance and exit and reduce visitor frustration.

The relocation of the west parking lot exit allows correction of some access concerns. The curve in the road is too sharp to accommodate all lengths of vehicles, some vehicles go off the road as they turn the corner. The junction where the parking lot access road meets Ruin Road would also be widened so all vehicle lengths would be able to negotiate the turn without having wheels slip into the irrigation ditch. Enclosing the irrigation ditch as part of this project would also remedy this safety issue.

Construction of the relocated Ruins Road, installing culverts in the roadside irrigation ditches, and other actions of this alternative would be expected to occur from January to May 2003. The existing Ruins Road would remain open and unaffected for use while the relocated road would be constructed. There may be the potential for short-term delays usually not exceeding 15 minutes while the ends of the existing road and replacement road are connected and culverts installed. Total time required to connect the road ends and install culverts would be expected to take five working days or less.

Traffic could be reduced to one lane during the connection process and could be subject to alternating, one-way movement at the construction zone. Flaggers and/or pilot cars could be used to regulate traffic. The New Mexico Department of Transportation would receive notice of the construction schedule, and the general public would be notified through public media and roadside signing. Construction signing would be installed to reduce traffic hazards due to construction.

There would be no construction activities at weekends or legal holidays; this would minimize disruption to road traffic.

Construction vehicles associated with the project would contribute to traffic using Ruins Road. Because of frequent use by heavy vehicles, there might be some potential for road damage. However, enforcement of weight limits and other federal, state, and local regulations and contractual stipulations would minimize the potential for conflicts and/or damage.

During construction activities, travelers using the road would be subject to the increased commercial truck traffic hauling construction material, and noise, dust, and visual intrusion. At times, drivers could experience traffic delays short-term traffic delays. Although drivers caught in the delays would be frustrated and consider the delays interminable, major construction-related traffic delays would not be anticipated. Although traffic delays could be possible, access would be provided immediately to any emergency vehicles.

Over the short term, recreational values would be adversely affected by noise, dust, fumes, delays, and construction vehicle traffic along this section of Ruins Road for a very short time. There would be long term, moderate intensity, positive impacts to the recreational experience from less traffic-related noise and minimally less visual intrusion into the monument's cultural resources and an improved road section should the proposed alternative be implemented.

Cumulative Impacts: Construction associated with reasonably foreseeable future actions, such as remodeling the visitor center, erecting boundary fencing and improving the monument's irrigation system may be coincident with construction associated with the proposal of relocating Ruins Road. When future construction occurs, construction vehicles could cause congestion along nearby roads and in the monument's parking area. Such congestion would impact all visitors regardless of travel mode, because private vehicles and tour buses share the same roadways, and would temporarily reduce the quality of experience for visitors. The impacts associated with each individual project would generally be short-term and minor, lasting only as long as construction. However, the cumulative intensity of such impacts could be magnified by the number of construction activities occurring simultaneously. The short-term, minor, construction related, adverse impacts of the preferred alternative, in conjunction with adverse impacts of other reasonably foreseeable future actions, could result in minor short-term adverse cumulative impacts to visitor use; however, the adverse impacts of the preferred alternative would be a small component of any overall cumulative impact. In addition, any adverse cumulative impacts associated with implementation of the preferred alternative would be partially offset by the moderate beneficial impacts of the actions proposed.

Conclusion: Over the short term, recreational values would be adversely affected by noise, dust, fumes, delays, and construction vehicle traffic along this section of Ruins Road for a very short time. Over the long term visitors would benefit from less noise and minimally less visual intrusion into the monument's cultural resources and an improved road section.

Monument Operations: Relocating Ruins Road would result in a long-term, minor to moderate, direct beneficial impact upon monument operations by removing or appreciably lessening the cause of vibration impacts on monument resources and, thus eliminating or substantially reducing

the amount of time and direct dollars to repair and stabilize damage to cultural resources.

Vibration monitoring would continue in both the visitor center and ruins. However, it is expected that cracks in the visitor center walls would not grow or increase at the same rate as when the road was located nearby, thus potentially lessening the immediacy of the need for possible structural repair.

If the 2,100 feet of Ruins Road would be relocated and the curve improved, it would be expected that incidents involving south-bound drivers failing to make the curve and colliding with the monument's chain link fence would appreciably decrease. Thus, the need to occasionally repair a damaged fence would be eliminated.

Relocating the exit from the west parking lot would be primarily to control access to the lot after hours; the access would be to the north of the locked entrance gate. The relocated entrance would have a locked gate that would serve as a stronger closure, both physically and psychologically to would-be after-hours visitors, than the present entrance chain. This would help reduce the number of unauthorized after-hours visitors, and associated preservation and safety concerns. The monument would work out an arrangement with local authorities for unhindered passage through the locked entrance gate for emergency services.

Cumulative Impacts: Reasonably foreseeable future actions at Aztec Ruins NM, such as remodeling the visitor center, erecting boundary fencing and improving the monument's irrigation system, could result in short-term, minor adverse increases in the workloads of the monument's resource management staff, due to increased needs for resource monitoring and protection during construction. None of the reasonably foreseeable projects are anticipated to be coincident with implementation of the preferred alternative, but the intensity of these minor, short-term adverse impacts could be magnified by a number of construction activities occurring simultaneously. However, these adverse impacts would be short-term and a small component of any overall cumulative impact to monument operations.

Conclusion: The preferred alternative would result in a long-term, minor to moderate, directly beneficial impact to monument operations.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Aztec Ruins NM; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the monument's general management plan or other relevant NPS planning documents, there would be no impairment of the monument's resources or values.

COMPLIANCE

This EA provides disclosure of the planning and decision-making process and potential environmental consequences of the alternatives. The analysis of environmental consequences was prepared on the basis of a need to adequately analyze and understand the consequences of the impacts related to the proposed developments and to involve the public and other agencies in the decision-making process.

In implementing this proposal, the NPS would comply with all applicable laws and executive orders, including the following:

NEPA: The environmental analysis was prepared in accordance with the regulations of the Council on Environmental Policy Act (CEQ) (40 CFR 1500 et seq.) and in part 516 of the U.S. Department of the Interior's Departmental Manual (516 DM).

The National Environmental Policy Act (NEPA) is the basic national charter for environmental protection; among other actions it calls for an examination of the impacts on the components of affected ecosystems. The 1989 GMP, 2001 NPS *Management Policies*, DO-12 (*Conservation Planning, Environmental Impact Analysis and Decision Making*); and DO-77 (*Natural Resources Management*), among other NPS and monument policies, provides general direction for the protection of the natural abundance and diversity of all the monument's naturally occurring communities.

Various agencies have been contacted and consulted as part of this planning and environmental analysis effort. Appropriate federal, state, and local agencies have been contacted for input, review, and permitting in coordination with other legislative and executive requirements.

Special Status Species: Endangered Species Act of 1973, as amended (16 USC 1531 et seq.). Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats.

Cultural Resources: The NPS is mandated to preserve and protect its cultural resources through the Organic Act of August 25, 1916, and through specific legislation such as the Antiquities Act of 1906, the National Environmental Policy Act of 1969 (as amended), and the National Historic Preservation Act of 1966, NPS *Management Policies 2001*, the *Cultural Resource Management Guideline* (DO-28), and the Advisory Council on Historic Preservation's implementing regulations regarding *Protection of Historic Properties* (36 CFR 800). Section 106 of the National Historic Preservation Act of 1966 requires that federal agencies having direct or indirect jurisdiction over undertakings consider the effect of those undertakings on properties on or eligible for listing on the National Register of Historic Places and afford the Advisory Council on Historic Preservation and the state historic preservation office an opportunity to comment.

As construction occurs, an archeologist will monitor activities to assure that archeological resources are not impacted. If unknown buried deposits are located, documentation of the resources will occur. Construction will avoid impacting deposits whenever possible. However, in the unlikely event that impacts to previously unknown or known buried deposits are unavoidable, data recovery excavation may be undertaken. Data recovery efforts would be guided by the provisions of the 1966 National Historic Preservation Act, as amended in 1992 (16 USC 470); the Native American Graves Protection and Repatriation Act (1990), the Advisory Council regulations *Protection of Historic Properties 2000* (36 CFR Part 800), and NPS *Cultural Resource Management Guidelines*, Release 5, 1997, and use a project-specific research design developed by the monument in consultation with the New Mexico State Historic Preservation Office.

In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the *Plan of Action Regarding the Treatment and Disposition of Inadvertently Discovered Cultural Items that May be Excavated or Removed as a Result of Four Planned Projects at Aztec Ruins National Monument* (NPS, *Plan of Action 2000, 2001*) would be followed. The Aztec Ruins NM staff, developed this plan in 2000, in consultation with American Indian tribes as required by the Native American Graves Protection and Repatriation Act (NAGPRA)[Public Law No. 101-601; 25 USC Section 3001-3013; 104 Stat. 3048-3058] and its implementing regulations (43 CFR 10) particularly Sections 10.3 through 10.7

The NPS developed this Plan of Action as required by NAGPRA and its implementing regulations to address the treatment and disposition of any Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that may be encountered, excavated, or removed as a result of four projects planned on park lands. The notified Indian tribes include the Hopi Tribe, Jicarilla Apache Tribe, Mescalero Apache Tribe, the Navajo Nation, Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Acoma, Pueblo of Isleta, Pueblo of Nambe, Pueblo of San Felipe, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Taos, Pueblo of Tesuque, Pueblo of Zia, Pueblo of Santa Domingo, Pueblo of San Juan, Southern Ute Tribe, Ute Mountain Ute Tribe, Ysleta del Sur Pueblo, and the Pueblo of Zuni.

In a letter dated March 20, 2000, and pursuant to 43 CFR 10.3(c)(1) and 10.5(a)(1)-(b) the park superintendent notified the tribal governments of the 26 tribes listed above with regard to plans for the completion of four projects scheduled to take place in the park, including Ruins Road realignment. This notification specifically provided the appropriate information required by 43 CFR 10.3(c)(1), and proposed consultation as described at 43 CFR 10.5 (a)(1) and (b).

Pursuant to 43 CFR 10.5(a)(1) and (b)(2)-(3), staff from Aztec Ruins NM consulted with Indian tribes at a meeting held at the monument on April 19, 2000, regarding the four activities and the treatment and disposition of any Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are encountered, excavated, or removed as a consequence of the activities.

Representatives from the Pueblo of Laguna, Pueblo of Nambe, Pueblo of Zia, Pueblo of Santa Ana, Pueblo of Acoma, Hopi Tribe, the Navajo Nation, Ute Mountain Ute Tribe, and the Southern Ute Tribe were present at the April 19, 2000 consultation meeting.

CONSULTATION AND COORDINATION

AGENCIES and ORGANIZATIONS

Agencies and Organizations contacted for information; or that assisted in identifying important issues, developing alternatives, or analyzing impacts; or that have been sent the EA for review and comment include:

Federal Agencies

Advisory Council on Historic Preservation
U.S. Department of the Interior - Fish and Wildlife Service

State Agencies

Office of Cultural Affairs, Historic Preservation Division (office of State Historic Preservation Officer)

Associated Native Americans

Pueblo of Cochiti	Pueblo of Isleta	Pueblo of Sandia	Jicarilla Apache Tribe
Hopi Tribe	Pueblo of Jemez	Pueblo of Santa Ana	Southern Ute Tribe
Pueblo of Laguna	Pueblo of Pojoaque	Pueblo of Santa Clara	Ute Mountain Tribe
Pueblo of Nambe	Pueblo of San Felipe	Pueblo of Santo Domingo	Ysleta del Sur Pueblo
Navajo Nation	Pueblo of Zia	Pueblo of Taos	Mescalero Apache Tribe
Pueblo of Picuris	Pueblo of San Ildefonso	Pueblo of Tesuque	Pueblo of Acoma
Pueblo of San Juan	Pueblo of Zuni		

American Indian tribes traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consults, were apprised by letter of the proposed action on January 17, 2001 (letter on file at monument headquarters). The proposed project was discussed with affiliated tribes on April 19, 2000, and February 15, 2001, at Aztec Ruins NM. American Indian tribes traditionally associated with the lands of Aztec Ruins NM, and others with whom monument staff regularly consult, expressed concern about ground disturbance at the monument and the potential inadvertent discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony.

Comments regarding the proposed action were received from the Pueblo of Ysleta del Sur, the Pueblo de San Ildefonso, the Mescalero Apache, and the Hopi Tribe. Comments from the Pueblo of Ysleta del Sur, Pueblo de San Ildefonso and the Mescalero Apache indicated support for the project. Comments from the Hopi Tribe expressed concerns regarding the monument's *Plan of Action* relating to Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 (NAGPRA). The Hopi Tribe asked that an addendum be added to the park's *Plan of Action* addressing concerns that if any NAGPRA items were encountered that they remain *in situ* and not undergo a determination of cultural affiliation. After review of the revised *Plan of Action* the Hopi Tribe indicated in a letter of June 11, 2001, that the Hopi Cultural Preservation Office had

no further immediate concerns regarding archeological testing for the road relocation project and asked to be provided with a copy of the testing report for review and comment.

Copies of the environmental assessment will be forwarded to each affiliated tribe or group for review and comment. If subsequent issues or concerns are identified, appropriate consultations would be undertaken.

SELECTED REFERENCES

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1984 *Prehistory of the Southwest*, Academic Press, Inc., New York, Harcourt Brace Javanovich, Publishers

Hutt, Sherry; Blanco, Caroline; Varmer, Ole.

1999 *Heritage Resources Law: Protecting the Archeological and Cultural Environment*, The National Trust for Historic Preservation, New York John Wiley and Sons, Inc.

Lister, Florence C. and Robert H.,

1968 *Earl Morris and Southwestern Archeology* Albuquerque, University of New Mexico Press.

1989 Matthews, Meredith H. "Results of the Second Phase or Archaeological Field Work for the New Mexico State Road 44 Extension to Aztec Ruins National Monument." Report 87-SJC-072A.

Executive Orders

Executive Order 11988 (Floodplain Management)

Executive Order 11990 (Protection of Wetlands)

Executive Order 12898 (Environmental Justice)

National Park Service, U.S. Department of the Interior

Director's Orders

DO-2 *Park Planning*

DO-12 *Conservation Planning, Environmental Impact Analysis, and Decision Making*

DO-28 *Cultural Resource Management Guideline*, Release No. 5, 1997.

DO-47 *Sound Preservation and Noise Management*

1916 Aztec Ruins National Monument General Management Plan/Development Concept Plan/Environmental Assessment

1989 *General Management Plan/Development Concept Plan/Environmental Assessment, Aztec Ruins National Monument*. (Copy available at Aztec Ruins National Monument).

1990 *Aztec Ruins National Monument Administrative History of an Archeological Preserve*, prepared by Robert H. Listor and Florence C. Listor. (Copy available at Aztec Ruins National Monument).

1993 Aztec Ruins National Monument Land Protection Plan

1993 Aztec Ruins National Monument Statement for Management

1994 Vibration Investigation of Archaeological Structures, Aztec Ruins National Monument, New Mexico. August 27. K. King, Consultant.

- 1996 *National Register of Historic Places Registration Form, Aztec Ruins Administration Building/Museum*. Prepared for the National Park Service by Historic Research Associates, Inc. Copy available at Aztec Ruins National Monument.
- 1997 *Aztec Ruins National Monument: Cultural Landscapes Inventory Historic Designed Landscape-Level 2*, prepared by the University of Arizona. (Copy available at Aztec Ruins National Monument).
- 1998 Cultural Resource Management Guideline. Release 5. Washington, DC
- 1997 *Aztec Ruins National Monument: Cultural Landscapes Inventory Historic Vernacular Landscape-Level 2*, prepared by National Park Service, Intermountain Region, (Copy available at Aztec Ruins National Monument).
- 2000 Moore, Roger A. and Nathan, Randy L. "Archaeological Monitoring and Documentation of Test Trenches within the Proposed Ruins Road Realignment, Aztec Ruins National Monument, San Juan County, New Mexico." Moore Anthropological Research, Technical Report No. 2000-096. NMCRIS Activity No. 76024.
- 2001 *Aztec Ruins National Monument: Cultural Landscapes Inventory Prehistoric Designed Landscape-Level 2*, prepared by National Park Service, Intermountain Region, (Copy available at Aztec Ruins National Monument).
- 2001 Moore, Roger A. and Nathan, Randy L. "Phase I & II Archaeological Monitoring and Documentation of 28 Test Trenches, and Historic Research, for the Proposed Ruins Road Realignment, Aztec Ruins National Monument, San Juan County, New Mexico," Moore Anthropological Research, Aztec, New Mexico. NMCRIS Activity No. 76243.
- 2001 Relocate Ruins Road Value Analysis Study. Dec 18. On File at DSC.
- 2002 Bradford, James E. *Site Preservation Plan at LA 1674: An Alternative to Standard Data Recovery Techniques: Ruins Road Realignment Project, Aztec Ruins National Monument, New Mexico*, Aztec, New Mexico, April 2002).
- 2002 *Environmental Assessment: Remodeling Interior of Visitor Center: Aztec Ruins National Monument, San Juan County, City of Aztec, New Mexico*, (Copy available at Aztec Ruins National Monument).

U.S. Federal Government

1864 Act of Congress (13 Stat. 325)
1890 Act of Congress (26 Stat. 650)
1906 Joint Resolution of Congress (34 Stat. 831)
1955 Federal Air Quality Law
1963 Clean Air Act, as amended
1966 National Historic Preservation Act
1969 National Environmental Policy Act (NEPA)
1973 Endangered Species Act, as amended
1977 Clean Water Act
1990 Native American Graves Protection and Repatriation Act

36 CFR 800.11 40 CFR, Part 503

Preparers

National Park Service, Denver Service Center
Jane Sikoryak, Cultural Resource Specialist
Steve Stone, Natural Resource Specialist

Consultants

National Park Service, Aztec Ruins National Monument
Brian Culpepper, Archeologist
Stephanie Dubois, Superintendent
Theresa Nichols, Chief-Interpretation and Resource Management

U.S. Department Of Transportation, Federal Highway Administration, Denver, CO
Greg Budd, Design Team Leader
Tom Pudo, Project Manager

Appendix A

**US Fish and Wildlife Service
List of Special Status Species dated December 22, 2000**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

December 22, 2000

Cons. # 2-22-01-I-089

Stephen E. Stone, Superintendent
Aztec Ruins National Monument
National Park Service
Denver Service Center
12795 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

Dear Mr. Stone:

This responds to your December 1, 2000, letter requesting information on threatened or endangered species or important wildlife habitats that could be affected by the proposed relocation of 1,500 feet of Ruins Road in the Aztec Ruins National Monument in San Juan County, New Mexico.

We have enclosed a current list of federally-endangered, threatened, candidate species, and species of concern that may be found in San Juan County, New Mexico. Additional information about these species is available on the internet at <<http://nmrareplants.unm.edu>>, <<http://nmdhp.unm.edu/bisonm/bisonm.cfm>>, and <<http://ifw2es.fws.gov/endangeredspecies>>. Under the Endangered Species Act, as amended (Act), it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" any threatened, endangered, or proposed species, or critical habitat, and if necessary, to consult with us further. If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be done during the appropriate flowering or breeding season to evaluate any possible project-related impacts.

Candidates and species of concern have no legal protection under the Act and are included in this document for planning purposes only. We are required to monitor the status of these species. If significant declines are detected, these species could potentially be listed as endangered or threatened. Therefore, actions that may contribute to their decline should be avoided. We recommend that candidates and species of concern be included in your surveys.

Stephen E. Stone, Superintendent

2


Under Executive Order 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and preserve and enhance their natural and beneficial values. We recommend you contact the U.S. Army Corps of Engineers for permitting requirements under Section 404 of the Clean Water Act if your proposed action could impact wetlands. These habitats should be conserved through avoidance or mitigated to ensure no net loss of wetlands functions and values.


The Migratory Bird Treaty Act (MBTA) provides a year-round no hunting season for non-game birds and prohibits the taking of migratory birds, nests, and eggs, except as permitted. To minimize the likelihood of adverse impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and if necessary, avoided until nesting is complete.

Please keep in mind that the scope of federally-listed species compliance also includes any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect and cumulative effects.

Thank you for your concern for endangered species and New Mexico's wildlife habitats. If you have any questions, please contact Dennis Coleman at the letterhead address or at (505) 346-2525, ext. 116.

Sincerely,



 Joy E. Nicholopoulos
Field Supervisor

Enclosure

cc: (w/o enc)

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry
Division, Santa Fe, New Mexico

Threatened, Endangered, and Candidate Species,
and Species of Concern
December 22, 2000

San Juan County

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E**
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Townsend's big-eared bat, Corynorhinus townsendii, SC
Spotted bat, Euderma maculatum, SC
American peregrine falcon, Falco peregrinus anatum, SC
Arctic peregrine falcon, Falco peregrinus tundrius, SC
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/PCH
Mountain plover, Charadrius montanus, PT
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E
Western burrowing owl, Athene cucularia hypugaea, SC
White-faced ibis, Plegadis chihi, SC
Yellow-billed cuckoo, Coccyzus americanus, SC
Colorado pikeminnow, Ptychocheilus lucius, E w/CH
Razorback sucker, Xyrauchen texanus, E w/CH
Roundtail chub, Gila robusta, SC
New Mexico silverspot butterfly, Speyeria nokomis nitocris, SC
San Juan checkerspot butterfly, Euphydryas anicia chuskae, SC
San Juan tiger beetle, Cicindela lengi jordai, SC
Beautiful gilia, Gilia formosa, SC
Bisti fleabane, Erigeron bistiensis, SC
Brack's fishhook cactus, Sclerocactus cloveriae var. brackii, SC
Goodding's onion, Allium gooddingii, SC
Knowlton cactus, Pediocactus knowltonii, E
Mancos milk-vetch, Astragalus humillimus, E
Mesa Verde cactus, Sclerocactus mesae-verdae, T
Parish's alkali grass, Puccinellia parishii, SC
Santa Fe cholla, Opuntia viridiflora, SC

Index

- E = Endangered (in danger of extinction throughout all or a significant portion of its range).
- PE = Proposed Endangered
- T = Threatened (likely to become endangered within the foreseeable future throughout all or a significant portion of its range).
- PT = Proposed Threatened
- CH = Critical Habitat
- PCH = Proposed Critical Habitat
- C = Candidate Species (taxa for which the Service has sufficient information to propose that they be added to list of endangered and threatened species, but the listing action has been precluded by other higher priority listing activities).
- SC = Species of concern (taxa for which further biological research and field study are needed to resolve their conservation status OR are considered sensitive, rare, or declining on lists maintained by Natural Heritage Programs, State wildlife agencies, other Federal agencies, or professional/academic scientific societies). Species of concern are included for planning purposes only.
- S/A = Similarity of Appearance
- * = Introduced population
- † = May occur in this county from re-introductions in Colorado.
- XN = Nonessential Experimental Population
- ** = Survey should be conducted if project involves impacts to prairie dog towns or complexes of 200-acres or more for the Gunnison's prairie dog (*Cynomys gunnisoni*) and/or 80-acres or more for any subspecies of Black-tailed prairie dog (*Cynomys ludovicianus*). A complex consists of two or more neighboring prairie dog towns within 4.3 miles (7 kilometers) of each other.
- *** = Extirpated in this county

Appendix B
Office of Cultural Affairs, Historic Preservation Division
State of New Mexico
Letter of Concurrence regarding Ruins Road Realignment Project,
Aztec Ruins National Monument, 2002

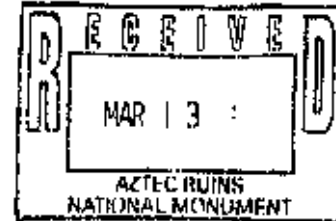


Gary E. Johnson
Governor

STATE OF NEW MEXICO
OFFICE OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION
LA VILLA RIVERA BUILDING
228 EAST PALACE AVENUE
SANTA FE, NEW MEXICO 87501
(505) 827-6328

Terry
Steph
(last) 2/13

Stephanie R. Dubois, Superintendent
Aztec Ruins National Monument
#84 County Road 2900
Aztec, NM 87410-9715



10 March January 2002

Re: AZRU Ruins Road Realignment, Package 154, (SR 248 and CR 2900)
H4217 (AZRU)

Dear Ms. Dubois:

I am writing in response to your letter regarding the Section 106 Compliance for the proposed Ruins Road Relocation at Aztec Ruins National Monument. Your letter was received in this office on 5 February 2002, and was accompanied by two documents:

- A copy of the report, *Phase I and II Archaeological Monitoring and Documentation of 28 Test Trenches, and Historic Research, for the proposed Ruins Road Realignment, Aztec Ruins National Monument, San Juan County, New Mexico*, by Roger A. Moore and Randy L. Nathan of Moore Anthropological Research (2001-040b; NMCRIS 76243).
- *Site Preservation Plan at LA 1674; An Alternative to Standard Data Recovery Techniques*, by James E. Bradford of the National Park Service.

The archaeological testing documented in the Moore and Nathan report was conducted in order to provide site-specific data necessary to evaluate the potential effects of a proposed realignment of 2200 feet of the "Ruins Road" (SR 248). The realignment has been proposed in order to remove the existing road and intersection from the Visitor Center parking lot. Current traffic flow patterns create hazardous driving conditions and also expose portions of West Ruin and the historic Visitor Center structure to damaging road noise and vibrations, hence the need for the realignment. Given the topographic configuration along the stretch of road to be realigned, the possible locations for the realignment are extremely limited. As currently proposed, the realignment will be designed so as to move the paved road to the south of the current alignment, thus crossing through LA 1674, a multicomponent archaeological site that is eligible to the National Register of Historic Places. The research reported in the testing document has been carried out to provide data about the nature and extent of cultural materials that would be affected by the realignment, and has incorporated archaeological fieldwork at LA 1674 as well as extensive archival research.

In terms of compliance with Section 106 of the National Historic Preservation Act, the detailed information that has been compiled has enabled the park to determine that LA 1674 is eligible to the National Register of Historic Places, and that potential effects to the site resulting from the proposed undertaking should be carefully considered and if possible, mitigated. Various options for addressing the potential effects of the undertaking upon the site have been considered by the National Park Service, including avoidance of the site by changing the proposed realignment, data recovery in the area of potential effect through excavation, data recovery through remote sensing, and preservation in place through burial of the site with protective fill. This office concurs that protective burial represents the best preservation option, as long as certain stipulations are met (see below); the site preservation plan makes a clear and well-supported case for the advantages of preservation in place, as well as the means that may be employed to mitigate effects. Local topographic conditions preclude avoidance through a re-route, and data recovery (whether destructive or non-destructive) could not appropriately be considered mitigation, although it would provide additional information that may be useful to the park. Data recovery through excavation would also intensify a number of other issues, including tribal concerns with the undertaking.

This office concurs with a determination of "no adverse effect" for the proposed undertaking, subject to the stipulations listed below.

1. As specified in the site preservation plan, the following measures will be undertaken:

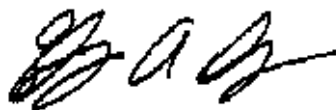
- A program of remote sensing will be conducted to acquire information across the entirety of LA 1674 prior to any construction. It would be particularly useful to establish the northern and southern boundaries, although the focus of the remote sensing activities should be features in the area of potential effect (APE).
- Following remote sensing, limited archaeological testing should be considered, as appropriate, to confirm certain features.
- Specific measures specified on pp. 5-6 of the site preservation plan will be employed, to minimize stress to artifacts and features as site burial (and later construction) occurs, including hand clearing of vegetation, careful surface preparation employing fills and geotextiles, carefully moderated heavy equipment use, design of drainage to direct surface water away from the site, etc. As noted, the recommended preservation measures should be incorporated into the planning and design of the road realignment project.

2. As recommended in the testing report, once all investigations of LA 1674 are complete, a new site map should be prepared and submitted to the Archaeological Records Management Section (our data repository) as an accompaniment to an updated site form.

3. The final submittal (report and site form) should be complete, including culture historical information as well as artifact and feature data. The guiding principle in preparing the submittal should be to create a document that can be easily accessed and used by park staffs well as other researchers in the future. It may well be critical for a future archaeologist (or park interpreter) to know, for example, exactly how many sherds of exactly what type(s) were recovered from particular test trenches. General statements such as "Observed artifacts include Pueblo II-III ceramics" provide an appropriate level of detail for the present discussion, but do not maximize the "information potential" of the work accomplished. Even though full data recovery has not been conducted, there are important data now available as a result of the testing. Artifact and feature data could easily be captured in forms or tables, folded in to the body of the final report or as addenda to the updated site form.

In closing, I would like to commend the park as well as the archaeologists who have worked so hard and so long on this project. The work conducted by Moore Anthropological Research was carefully conducted and reported, and incorporated a very thorough historical records search. Jim Bradford, of the Intermountain Support Office, researched a wealth of useful (and hard-to-find) information about appropriate "site burial" techniques and developed an excellent preservation plan. And of course, none of the foregoing would have occurred had not the management staff at Aztec been committed to preserving the park's cultural resources while accomplishing a needed change to the park landscape. Your continuing efforts have exemplified the spirit of the National Historic Preservation Act.

Keep up the good work,



Elizabeth A. Oster
Staff Archaeologist

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