

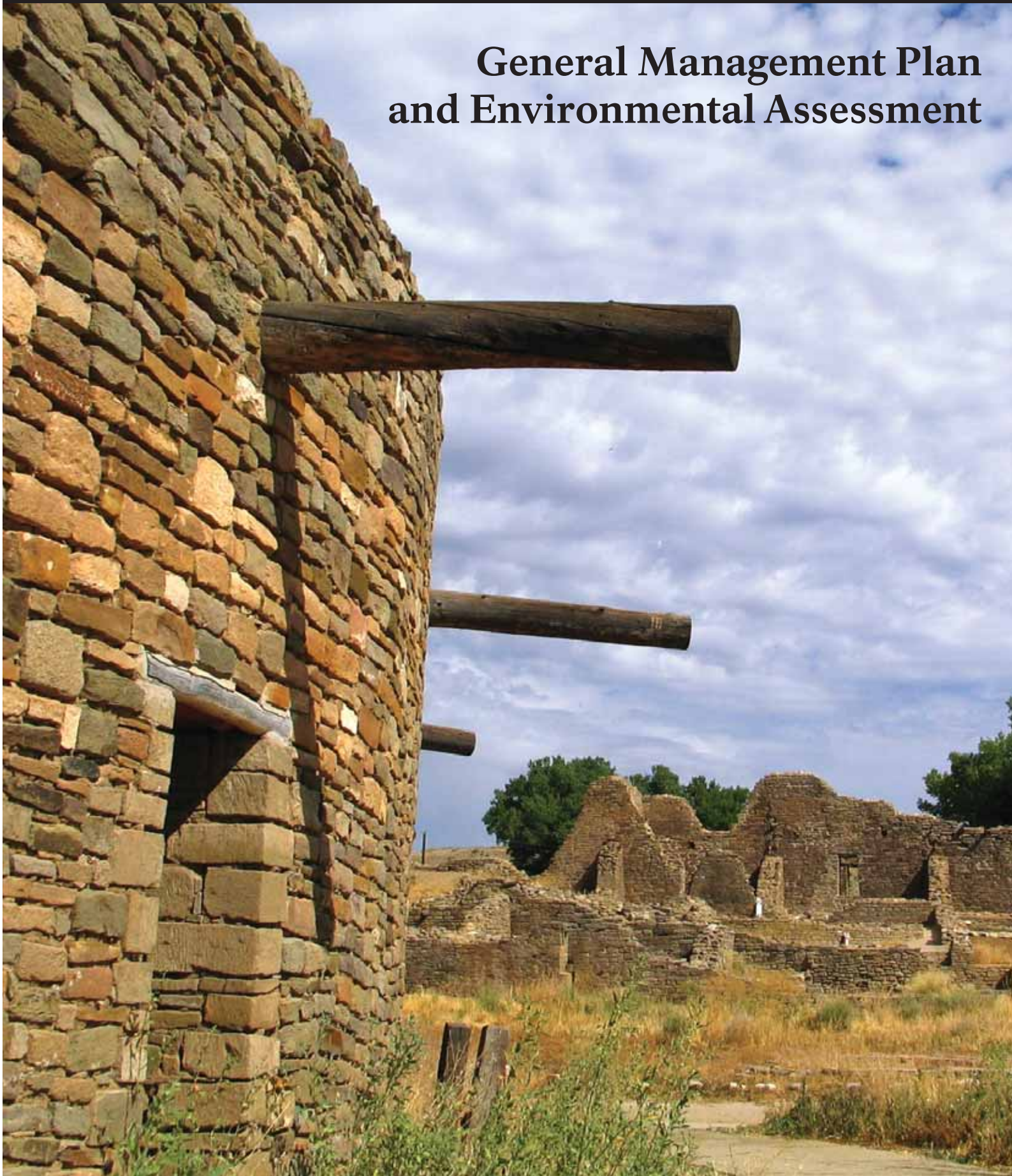


National Park Service  
U.S. Department of the Interior

# Aztec Ruins National Monument

New Mexico

## General Management Plan and Environmental Assessment





*The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resources conservation and outdoor recreation throughout this country and the world.*

# **GENERAL MANAGEMENT PLAN/ENVIRONMENTAL ASSESSMENT**

Aztec Ruins National Monument  
San Juan County, New Mexico

February 2010

This document is the General Management Plan/Environmental Assessment for Aztec Ruins National Monument. A general management plan (GMP) describes the general approach the National Park Service intends to follow in managing this national monument over the next 15 to 20 years. The general management plan portion of this document identifies the monument's purpose, significance, and fundamental resources and values (Chapter 1), followed by three alternative ways to manage cultural and natural resources, visitor experience, and facilities to preserve these important resources and values (Chapter 2). Alternative 1 is the "no-action alternative" that provides a baseline against which to evaluate the other alternatives; it would result in continuation of current management practices into the future. Alternative 2 would expand resource management and visitor opportunities beyond the West Ruin to areas such as East Ruin and North Ruin. Alternative 3 would also expand resource management and visitor opportunities, and further emphasize outreach and partnerships and the intertwined future of both the monument and its surrounding environment in achieving common goals. Alternative 3 is the National Park Service's Preferred Alternative, the management strategy the National Park Service intends to implement. If approved, it would establish the framework for more detailed plans and decisions to come.

The environmental assessment portion of this document (Chapters 3, 4, and 5) provides background information about conditions in and around Aztec Ruins National Monument for cultural and natural resources, visitor experience and educational opportunities, the socioeconomic environment, and monument operations. It further addresses the environmental consequences (also known as "impacts") that would be expected from implementing each of the three GMP alternatives.

This General Management Plan/Environmental Assessment will be released to the public for a 60-day comment period. Following the review period, the National Park Service planning team will evaluate comments from other federal agencies, organizations, businesses, and individuals in preparation for a decision document for approval of the plan. This document records the National Park Service selection of an alternative for implementation and will be signed by the National Park Service regional director.



## HOW TO COMMENT ON THIS PLAN

Comments on this General Management Plan/Environmental Assessment (GMP/EA) are welcome and will be accepted for 60 days after its release. Comments should be provided online at the National Park Service (NPS) Planning, Environment and Public Comment Web site:

<http://parkplanning.nps.gov/azru>

Click on “General Management Plan,” then in the left column, click on “Open for Public Comment.” Finally, follow the directions for entering comments.

For members of the public without Internet access, comments may be mailed in writing to:

Dennis L. Carruth  
Superintendent, Aztec Ruins National Monument  
84 County Road 2900  
Aztec, NM 87410-9715

We encourage you to provide us with written comments on this document during the 60-day comment period, especially to provide your opinion with regards to the alternatives presented herein. Dates for which the comment period is open are listed on the Web site shown above and are advertised via NPS news releases and local media. You may contact the superintendent for this and other project-related information at (505) 334-6174 ext. 222.

It is the practice of the National Park Service to make all comments, including names and addresses of respondents who provide that information, available for public review following the conclusion of the planning process. However, before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

# SUMMARY

## INTRODUCTION

This general management plan (GMP) describes the general path the National Park Service intends to follow in managing Aztec Ruins National Monument over the next 15 to 20 years. The new plan will give comprehensive guidance for preserving cultural and natural resources and for providing quality visitor experiences at this remarkable community of ruins along the Animas River in Aztec, New Mexico. Its purpose is to ensure that managers and the public share the same vision of how best to achieve the monument's purpose and protect its resources unimpaired for future generations. Because implementation of the GMP is a proposed federal action, the National Environmental Policy Act mandates that the National Park Service consider a range of alternatives, including no action, and disclose the environmental impacts of each alternative. Thus, an environmental assessment is being prepared in conjunction with this GMP for Aztec Ruins National Monument.

Aztec Ruins is currently being managed under a GMP that was completed in 1989. Since it was completed, many of the goals have been achieved and new issues and planning interests have arisen that warrant a new GMP to provide direction. These interests include the need to:

- Determine desired future conditions for natural and cultural resources, visitor experience, and facilities development for the nearly 300 acres of land that have been added to the monument boundaries since 1988, in addition to the original 27 acres. Inventories and resource knowledge that has been acquired since the 1989 GMP and the changing and projected future operational needs must also be incorporated into these desired future conditions.
- Reassess and make recommendations regarding the development that was prescribed in the 1989 GMP. Some of that development has not been implemented, and some development has occurred that departed from these prescriptions.
- Address potential impacts to monument resources and visitor experience from development that may occur outside, but adjacent to, the monument boundaries, and in association with active gas wells within the monument.
- Explore partnership opportunities with neighbors, the City of Aztec, American Indian tribes, and others to protect resources within and surrounding the monument, and to enhance opportunities for enjoyment and understanding by visitors to the monument and residents throughout the region.
- Seek the input of the local community, American Indian tribes, and other interested parties.

## BACKGROUND AND BRIEF DESCRIPTION OF AZTEC RUINS NATIONAL MONUMENT

Aztec Ruins National Monument was established in 1923 to protect a "ruin of great antiquity and historical interest ... with a view to the preservation of said ruin for the enlightenment and culture

of the nation” (Presidential Proclamation). Originally, it contained 4.6 acres and was called Aztec Ruin National Monument. The name was changed to Aztec Ruins National Monument in 1928 when its size was increased to 17.2 acres. It was expanded to 25.9 acres in 1930 and to 27.2 acres in 1948. Finally, Aztec Ruins was expanded to 317.8 acres in 1988. Research indicates that Aztec was the core of an extensive ceremonial center with other major features directly related to the Aztec Ruins. Many of these resources are intact and currently preserved within the monument boundary.

On December 8, 1987, the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated Aztec Ruins National Monument, along with Chaco Culture National Historical Park, as a World Heritage Site. With this listing, the national monument became one of twenty World Heritage Sites in the United States.

Due to their importance, resources within the national monument that warrant primary consideration in the planning process include ancestral Pueblo features such as the primary group of ruins in the West Ruin and East Ruin complexes, including the original intact masonry, wooden roofs, artifacts, and earthworks, and the reconstructed Kiva; surrounding archeological sites; prehistoric roadways; and the overall landscape. Other important resources that are considered include wildlife, vegetation, and the viewshed.

The values of Aztec Ruins National Monument considered during the planning process include: the opportunity to experience and make connections with an ancestral Pueblo community; the many American Indians who have strong connections to the area; archeological resources, which can contribute knowledge to the past, present, and future; and the opportunity to understand the continuum from ancient Pueblo communities, to the monument’s historic landscape and use, to current management by the National Park Service. Through collaboration, there is potential to share American Indian oral histories and traditions at Aztec Ruins.

## **DESCRIPTION OF THE ALTERNATIVES**

### **ALTERNATIVE 1: NO ACTION**

The general concept of the no-action alternative is to continue with current management practices at Aztec Ruins and serve as the baseline for evaluating the impacts of Alternatives 2 and 3. Management would continue to preserve and protect natural and cultural resources with an emphasis on prehistoric ruins and artifacts of the West Ruin area. Features of existing cultural landscapes would be retained, even where they overlap and conflict. Most visitors would continue to experience the visitor center and West Ruin interpretive trail. No new facilities would be constructed, but the Aztec Ruins Trading Post would be removed and the Kiva Trading Post would be rehabilitated for cultural resource offices, work space, and a wet lab. Management efforts would continue to be focused within the monument boundary.

### **ALTERNATIVE 2**

This alternative would expand the scope of resource stewardship and opportunities for more comprehensive visitor understanding throughout the monument. Distractions to visitor understanding of fundamental resources and values, such as the orchards, would be removed. Visitors would have opportunities to experience resources and stories beyond the West Ruin through additional trails and interpretative tools that would lead visitors to other areas of the

monument, including East Ruin and North Ruin. Resource management activities such as ruins stabilization, backfill, and research would be expanded from the focus on the West Ruin to additional significant cultural resources within the boundary of the monument. The Aztec Ruins Trading Post would be rehabilitated to serve as the new administrative headquarters of the monument. The Kiva Trading Post would be rehabilitated for cultural resource functions as in Alternative 1.

### **ALTERNATIVE 3: PREFERRED ALTERNATIVE**

This alternative emphasizes outreach and partnerships with a broader understanding of the importance of community and regional context and the intertwined future of both the monument and its surrounding environment. Aztec Ruins National Monument would strive to be woven into the fabric of the surrounding community and region, working in collaboration and partnership to achieve common goals. Such common goals could broadly include education and appreciation of shared heritage and culture, stewardship of heritage resources, archeological research and preservation, and shared environmental stewardship, in addition to furthering the specific mission of the monument.

Visitors would have expanded opportunities for experiences and learning within the monument, as well as connections to related opportunities in the surrounding region. As with Alternative 2, resource management activities would be expanded within the monument. However, in Alternative 3, such activities would also be linked to opportunities beyond monument boundaries. As with Alternative 2, features that distract visitors from understanding the monument's fundamental resources and values, such as the more recent orchards, would be removed. Visitors would have opportunities to experience resources and stories beyond the West Ruin through additional trails and interpretive tools that would lead visitors to the East Ruin and North Ruin. The Kiva Trading Post and the Aztec Ruins Trading Post would be rehabilitated as described in Alternative 2, except in this alternative the Aztec Ruins Trading Post would be further expanded to include a community meeting space that would welcome collaboration and partnership activities into the monument, including educational opportunities, arts and crafts, demonstrations, and other activities relating to American Indian cultures.

## **IMPACTS OF THE ALTERNATIVES**

### **ALTERNATIVE 1: NO ACTION**

Preservation activities for archeological resources would be focused on West Ruin resulting in long-term, moderate, beneficial impacts to West Ruin and long-term, negligible to minor, adverse impacts to East Ruin and North Ruin. Heavy visitation at West Ruin and ground-disturbing activities on North Mesa could also result in some long-term, minor, adverse impacts. Retention of the orchards and other features of the Historic Vernacular Landscape would result in moderate, adverse impacts to the Prehistoric Designed Landscape. Retention of the orchards would also result in long-term, minor to moderate, adverse impacts to native vegetation regimes and local wildlife because pear and apple orchards would be maintained. Riparian vegetation and water sources would be maintained resulting in no impacts to special status species.

Visitor access would continue to be limited to the West Ruin resulting in long-term, minor, adverse impacts to visitor experience. Retention of the administration trailer, the orchards, and other features of the Historic Vernacular Landscape would continue to degrade the prehistoric scene for some visitors. Improved visitor understanding related to limited partnerships and

community education would contribute to long-term, minor, beneficial impacts. Spending related to visitors and monument operations would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. The existing administration trailer would continue to provide insufficient space for monument staff and compromise safety resulting in long-term, moderate, adverse impacts. Removal of the Aztec Ruins Trading Post and rehabilitation of the Kiva Trading Post would provide long-term, negligible to minor, beneficial impacts. Staffing levels and efficiency would face long-term, moderate, adverse impacts due to the demands upon staff time to support resource and program needs.

## **ALTERNATIVE 2**

In Alternative 2, preservation activities would be expanded throughout the monument resulting in long-term, minor to moderate, beneficial impacts to archeological resources. New trail construction and related visitor use could result in some long-term, minor, adverse impacts to East Ruin, North Ruin, and other archeological resources. Removal of the pear and apple orchards within the Prehistoric Designed Landscape would result in beneficial impacts that are moderate for vegetation and minor for native wildlife. Wildlife would be adversely impacted in the short term due to trail construction activities and in the long term from trail use by visitors resulting in minor adverse impacts.

Long-term, minor to moderate, beneficial impacts would occur to the visitor experience from development of the new trail; expanding the interpretive and educational focus for visitors beyond the West Ruin to other resources; removing the administration trailer and rehabilitating the Aztec Ruins and Kiva Trading Posts; and removing the pear and apple orchards and other ornamental vegetation that detracts from the Prehistoric Designed Landscape. Although visitor opportunities would be expanded at the monument, visitation levels would remain similar to current levels and visitors' length of stay would not increase substantially. Thus, visitor spending would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. Ongoing monument operations, current employee spending, and an increased number of short-term construction projects would also contribute to the local economy, resulting in short-term and long-term, minor, beneficial impacts.

Monument operations would be substantially improved resulting in long-term, moderate, beneficial impacts with the rehabilitation of the Aztec Ruins and Kiva Trading Posts, because of increased space for staff and monument needs. Some short-term, minor, adverse impacts would occur to staff efficiency during facility and trail construction.

## **ALTERNATIVE 3: PREFERRED ALTERNATIVE**

Impacts that would result from implementation of Alternative 3 would be the same as those for Alternative 2, except for the many long-term, moderate, beneficial impacts that would result from the new cultural activities center and the enhanced partnership and outreach opportunities provided in Alternative 3. These benefits would accrue because of expanded information sharing and educational opportunities. The addition of the new cultural activities center would also result in long-term, moderate, beneficial impacts on monument operations by improving community relationships, augmenting staff with volunteers, and strengthening visitor services and protection of resources. Some additional adverse impacts could also occur related to new trails that could connect to a proposed community trail, but they would be minor to vegetation, wildlife, and the monument viewshed in the long term.



## **THE NEXT STEPS**

After the distribution of the General Management Plan/Environmental Assessment there will be a 60-day public review and comment period after which the National Park Service planning team will evaluate comments from other federal agencies, organizations, businesses, and individuals in preparation for a decision document for approval of the plan. This document will outline the NPS selection of an alternative for implementation and will be signed by the National Park Service regional director. Once it is signed, the plan can then be implemented.

## **IMPLEMENTATION OF THE PLAN**

The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. The implementation of the approved plan will depend on future funding, and it could also be affected by factors such as changes in park staffing, visitor use patterns, and unanticipated environmental changes. Full implementation could be many years in the future. Once the General Management Plan/Environmental Assessment has been approved, additional feasibility studies and more detailed planning, environmental documentation, and consultations would be completed, as appropriate, before certain actions in the NPS Preferred Alternative can be carried out.

Future program and implementation plans, describing specific actions that managers intend to undertake and accomplish in the monument, will tier from the desired conditions and long-term goals set forth in this general management plan.



# TABLE OF CONTENTS

## CHAPTER 1: INTRODUCTION TO THE PLAN

---

### INTRODUCTION TO THE PLAN — 1

- General Management Planning — 1
- Brief Description of Aztec Ruins National Monument — 1
- Appropriate Use — 7

### GUIDANCE FOR THE PLANNING EFFORT—9

- Monument Mission and Goals — 9
  - Monument Mission Statement — 9
  - Monument Mission Goals — 9
- Foundation for Planning and Management — 9
  - Monument Purpose — 10
  - Monument Significance — 10
  - Fundamental Resources and Values — 11
  - Primary Interpretive Themes — 14
  - Special Mandates and Administrative Commitments — 14
- Desired Conditions–From Law and Policy — 16
- Resource Areas — 20
- Planning Issues and Opportunities — 20
  - Archeological Resources — 20
  - Cultural Landscapes — 21
  - Visitor Experience and Educational Opportunities — 21
  - Facilities and Operations — 21
  - Outreach and Partnerships — 22
- Relationship of the General Management Plan to Other Planning Efforts — 22
  - Vegetation and Cultural Landscapes Management Plan — 22
  - Fire Management Plan — 22
  - Comprehensive Interpretive Plan — 23
- Resources and Values at Stake in the Planning Process — 23

## CHAPTER 2: ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

---

### INTRODUCTION TO THE ALTERNATIVES — 25

- Management Zones — 25
- Carrying Capacity — 33

### ACTIONS COMMON TO ALL ALTERNATIVES — 35

- Environmental Stewardship and Sustainability — 35
- Resource Management — 35
- Commercial Services — 36
- Farmers Ditch and Irrigation System — 37
- Land Protection — 37
  - Privately Owned Land within the Monument — 37

Nonfederal Subsurface Rights — 37

Boundary Adjustments — 38

**ALTERNATIVE 1: NO ACTION (CONTINUATION OF EXISTING CONDITIONS) — 39**

General Concept — 39

Resource Management — 39

Archeological Resources — 39

Cultural Landscapes — 42

Museum Collections — 43

Visitor Experience and Educational Opportunities — 43

Facilities and Operations — 44

Visitor Center — 44

Administration Trailer — 44

Maintenance Complex — 44

Aztec Ruins Trading Post — 45

Kiva Trading Post — 45

Outreach and Partnerships — 45

Communication with American Indian Tribes — 45

Staffing and Costs — 46

**ALTERNATIVE 2 — 47**

General Concept — 47

Resource Management — 47

Archeological Resources — 47

Cultural Landscapes — 49

Museum Collections — 50

Visitor Experience and Educational Opportunities — 50

Facilities and Operations — 51

Visitor Center — 51

Administration Trailer — 51

Maintenance Complex — 51

Aztec Ruins Trading Post — 52

Kiva Trading Post — 52

Outreach and Partnerships — 52

Communication with American Indian Tribes — 53

Staffing and Costs — 53

**ALTERNATIVE 3: PREFERRED ALTERNATIVE — 55**

General Concept — 55

Resource Management — 55

Archeological Resources — 56

Cultural Landscapes — 57

Museum Collections — 57

Visitor Experience and Educational Opportunities — 58

Facilities and Operations — 59

Visitor Center — 60

Administration Trailer — 60

Maintenance Complex — 60

Aztec Ruins Trading Post — 60



- Kiva Trading Post — 60
- Outreach and Partnerships — 60
  - Communication with American Indian Tribes — 61
- Staffing and Costs — 61

## **ACTIONS CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS — 63**

- Preservation of the Orchards — 63
- Staff Offices in Town — 63
- New Maintenance and Staff Housing Complex — 64

## **MITIGATION MEASURES FOR THE ACTION ALTERNATIVES — 65**

- General — 65
- Cultural Resources — 65
- Natural Resources — 66
- Visitors — 66

## **NPS PREFERRED ALTERNATIVE — 67**

## **ENVIRONMENTALLY PREFERRED ALTERNATIVE — 68**

## **CHAPTER 3: AFFECTED ENVIRONMENT**

---

### **IMPACTS RETAINED FOR FURTHER ANALYSIS — 77**

- Cultural Resources — 77
  - Archeological Resources — 77
  - Cultural Landscapes — 81
- Natural Resources — 86
  - Vegetation — 86
  - Wildlife — 87
  - Special Status Species — 88
- Visitor Experience and Educational Opportunities — 90
- Socioeconomic Environment — 92
  - Local Economy — 92
  - Adjacent Land Use — 93
- Monument Operations — 93
  - Facilities — 93
  - Staff Housing — 96
  - Oil and Gas Operations — 96
  - Staffing and Administrative Efficiency — 96

### **IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS — 97**

- Cultural Resources — 97
  - Historic Structures — 97
  - Ethnographic Resources — 98
  - Indian Trust Resources — 98
  - Museum Collections — 99
- Natural Resources — 99
  - Air Quality — 99
  - Water Resources — 100
  - Floodplains and Wetlands — 100

Topography, Geology, and Soils — 100  
Night Sky — 101  
Cultural Soundscapes — 101  
Prime and Unique Farmland — 101  
Environmental Justice — 102

## CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

---

### INTRODUCTION TO ENVIRONMENTAL CONSEQUENCES — 103

Terms and Assumptions for Analyzing Impacts — 103  
Cumulative Impacts — 104  
Impairment of National Park Resources — 106  
Unacceptable Impacts — 107  
Impacts to Cultural Resources, and Section 106 of the National Historic Preservation Act — 107

### METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS — 109

Cultural Resources — 109  
    Archeological Resources — 109  
    Cultural Landscapes — 110  
Natural Resources — 111  
    Vegetation — 111  
    Wildlife — 112  
    Special Status Species — 112  
Visitor Experience and Educational Opportunities — 113  
Socioeconomic Environment — 114  
Monument Operations — 114

### IMPACTS OF ALTERNATIVE 1: NO ACTION (CONTINUATION OF EXISTING CONDITIONS) — 116

Cultural Resources — 116  
    Archeological Resources — 116  
    Cultural Landscapes — 117  
Natural Resources — 119  
    Vegetation — 119  
    Wildlife — 120  
    Special Status Species — 120  
Visitor Experience and Educational Opportunities — 121  
Socioeconomic Environment — 122  
Monument Operations — 123

### IMPACTS OF ALTERNATIVE 2 — 125

Cultural Resources — 125  
    Archeological Resources — 125  
    Cultural Landscapes — 126  
Natural Resources — 128  
    Vegetation — 128  
    Wildlife — 128  
    Special Status Species — 130

Visitor Experience and Educational Opportunities —	131
Socioeconomic Environment —	132
Monument Operations —	134

### **IMPACTS OF ALTERNATIVE 3: PREFERRED ALTERNATIVE — 136**

Cultural Resources —	136
Archeological Resources —	136
Cultural Landscapes —	141
Natural Resources —	143
Vegetation —	143
Wildlife —	144
Special Status Species —	145
Visitor Experience and Educational Opportunities —	147
Socioeconomic Environment —	149
Monument Operations —	150

## **CHAPTER 5: CONSULTATION AND COORDINATION**

---

### **SUMMARY OF PUBLIC INVOLVEMENT, INCLUDING SCOPING — 153**

Scoping —	153
Scoping Newsletter —	153
Scoping Meetings–October 2003 —	154
Second Newsletter–January 2004 —	154
Alternatives Development —	155
Visitor Survey —	155
Public Open House–May 2004 —	156
Focus Group on Economics–November 2004 —	157
Change from Environmental Impact Statement to Environmental Assessment —	157
GMP/EA Review —	157

### **CONSULTATION WITH STATE AND FEDERAL AGENCIES — 158**

Advisory Council on Historic Preservation and New Mexico State Historic Preservation Officer —	158
U.S. Fish and Wildlife Service —	158
New Mexico Department of Game and Fish —	158
New Mexico Energy, Minerals, and Natural Resources —	159
Communication with American Indian Tribes —	159

### **PREPARERS AND CONSULTANTS — 160**

Preparers of the GMP/EA —	160
Contributors and Consultants —	161

### **BIBLIOGRAPHY — 163**

### **GLOSSARY — 167**

Abbreviations —	167
Definition of Terms —	167

## APPENDIXES

---

**APPENDIX A: LEGISLATION — 171**

**APPENDIX B: RESOURCE AREAS — 178**

**APPENDIX C: CARRYING CAPACITY — 181**

**APPENDIX D: ALTERNATIVE COST AND STAFFING COMPARISON — 183**

**APPENDIX E: CONSULTATION LETTERS — 184**

## LIST OF MAPS AND TABLES

---

### MAPS

Vicinity Map — 2

Prehistoric Sites — 3

Cultural Resources — 5

Management Zones — 28

Alternative 1 — 40

Alternative 2 — 48

Alternative 3 — 54

### TABLES

Table 1. Desired Conditions — 16

Table 2. Impact Topics — 24

Table 3. Descriptions of Desired Resource Conditions, Visitor Experience, and Facility Development by Management Zone — 29

Table 4. Carrying Capacity Indicators and Management Actions by Management Zone — 34

Table 5. Summary of Alternatives — 70

Table 6. Summary of Environmental Consequences — 73

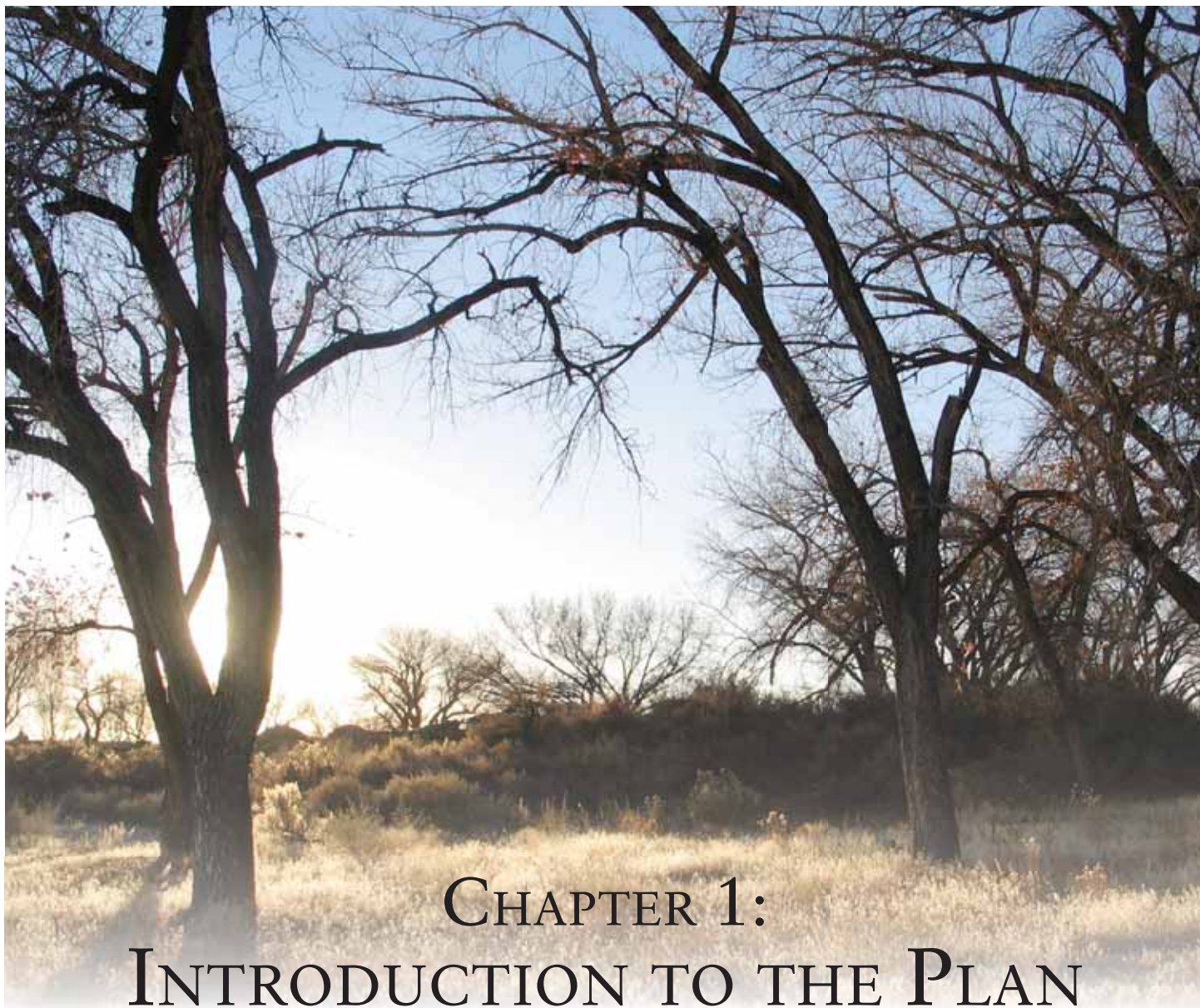
Table 7. Contributing and Noncontributing Landscape Elements of National Register Eligible Landscapes — 85

Table 8. Species Reported or With Potential to Occur Within Aztec Ruins National Monument — 89

Table 9. Existing Facilities at Aztec Ruins — 94

Table 10. Effects on Cultural Resources — 139





## CHAPTER 1: INTRODUCTION TO THE PLAN

The General Management Plan describes the general path the National Park Service intends to follow in managing Aztec Ruins National Monument over the next 15-20 years. The GMP does not provide specific answers to every issue facing the monument; rather, it is a framework to assist National Park Service managers in making decisions today and into the future.





# INTRODUCTION TO THE PLAN

## GENERAL MANAGEMENT PLANNING

Park planning is a decision-making process. General management planning is the broadest level of decision making and the first phase of tiered planning and decision making for national park units. General management plans are required for all units of the national park system and are intended to establish the future management direction of a park unit. These plans focus on why the park unit was established (purpose), why it is special (significance and fundamental resources and values), and what resource conditions and visitor experiences should be achieved and maintained (desired future conditions). General management plans look years into the future and consider the park in its cultural and ecological context and as part of a surrounding region.

Actions identified by general management plans or in subsequent implementation plans may be accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing national park system priorities may delay or preclude implementation of many actions. Full implementation of a plan could lie many years into the future.

## BRIEF DESCRIPTION OF AZTEC RUINS NATIONAL MONUMENT

Aztec Ruins National Monument was created via presidential proclamation by Warren G. Harding on January 24, 1923, as a “ruin of great antiquity and historical interest ... with a view to the preservation of said ruin for the enlightenment and culture of the nation.” Originally, it contained 4.6 acres and was called Aztec Ruin National Monument. The name was changed to Aztec Ruins National Monument in 1928 when its size was increased to 17.2 acres. It was expanded to 25.9 acres in 1930 and to 27.2 acres in 1948. Finally, Aztec Ruins was expanded to 317.8 acres in 1988. Appendix A provides the full language of presidential proclamations and public laws pertaining to the establishment of and changes to Aztec Ruins National Monument.

In 1966, Aztec Ruins National Monument was placed on the National Register of Historic Places (NRHP) as a district. On December 8, 1987, the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated Aztec Ruins National Monument, along with Chaco Culture National Historical Park, as a World Heritage Site. With this listing, the national monument became one of twenty World Heritage Sites in the United States. The prehistoric features at Aztec Ruins are considered to be “fragile and irreplaceable, and form a significant part of our global cultural heritage.” (Lister and Lister 1990, 189)

Located in northwestern New Mexico, in the town of Aztec, in San Juan County, Aztec Ruins National Monument is one of the most important archeological sites in the United States (see Vicinity map). The significance of Aztec Ruins lies in its great prehistoric physical remains, the stories of the cultures that have occupied the Animas River valley, and its role in the larger regional prehistoric context. Numerous archeological sites have been found throughout the region. Some of the outlying great houses and other prehistoric community sites near Aztec Ruins are shown on the Prehistoric Sites map.

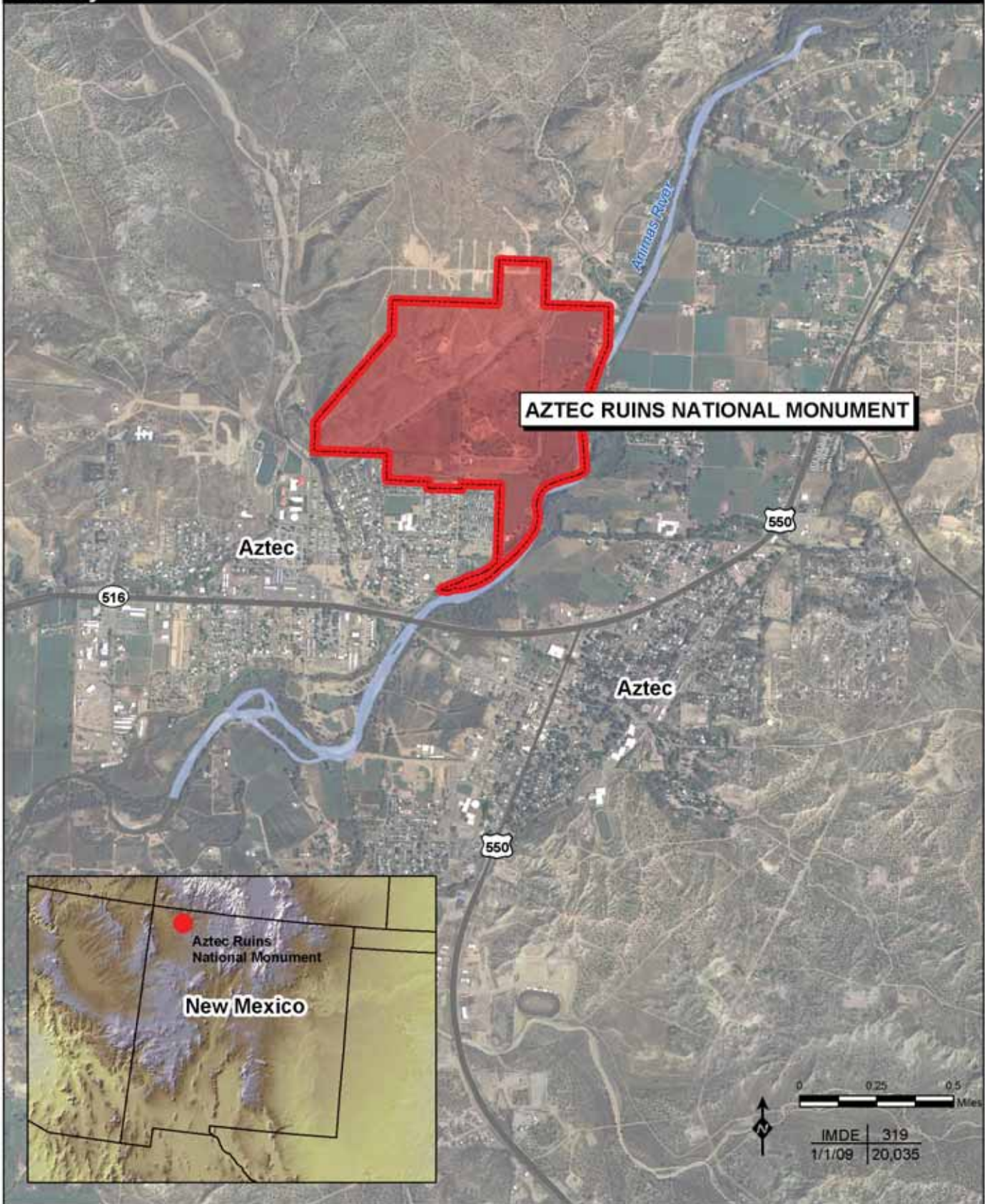


# Aztec Ruins National Monument

New Mexico

Vicinity

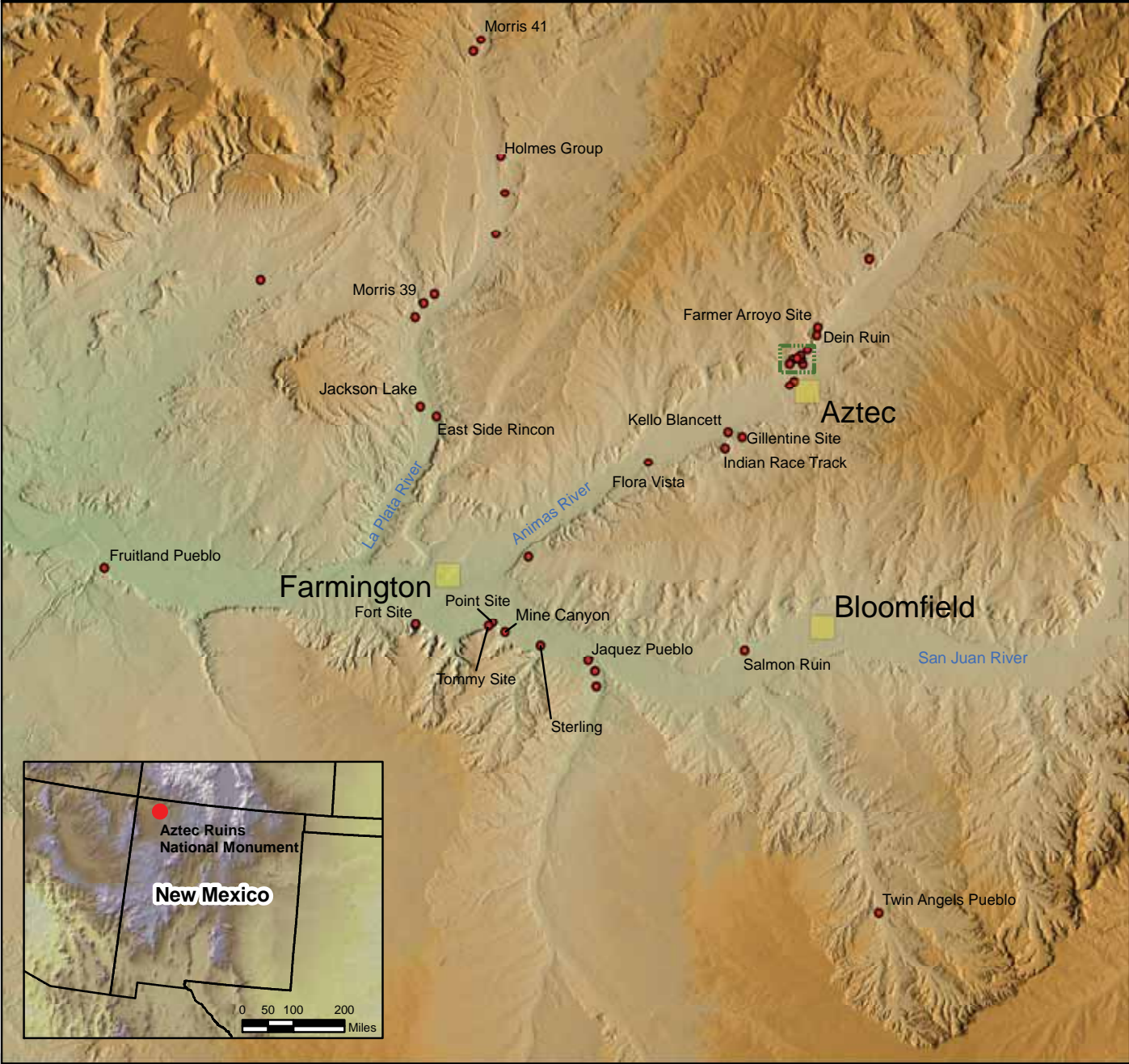
National Park Service  
U.S. Department of the Interior





**Aztec Ruins National Monument**  
New Mexico  
**Prehistoric Sites**

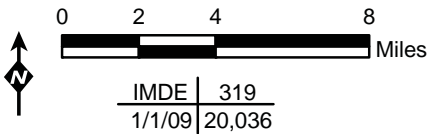
National Park Service  
U.S. Department of the Interior



**Late Pueblo II to Pueblo III Central Community Sites  
Near Aztec Ruins National Monument  
(A.D. 1000 to 1300)**

**Legend**

- Aztec Ruins National Monument
- Present-Day Cities
- Important Late Prehistoric Sites



Major concentrations of prehistoric sites at Aztec Ruins are found in two general locations, as shown on the Cultural Resources map: 1) the Main Ruins Group, including West Ruin and East Ruin; and 2) the Aztec North Mesa Archeological District, consisting of Residence West, North Ruin, and an extensive concentration of related sites. Three different cultural landscapes have also been identified at Aztec Ruins: 1) the Prehistoric Designed Landscape, which, at over 315 acres, includes most of the national monument; 2) the Historic Vernacular Landscape, which, at 170 acres, includes more than half of the monument; and 3) the Historic Designed Landscape, consisting of 2.35 acres. These landscapes are also shown on the Cultural Resources map and are discussed in more detail throughout this document. More detailed information about many other aspects of Aztec Ruins can be found later in this chapter under “Resource Areas” and in Chapter 3, “Affected Environment.”



*Aerial View of Visitor Center, Great Kiva, and West Ruin*

## **PURPOSE AND NEED FOR THE GENERAL MANAGEMENT PLAN**

This Aztec Ruins National Monument General Management Plan (GMP) provides comprehensive guidance for preserving cultural and natural resources and providing opportunities for quality visitor experiences at this remarkable community of ruins along the Animas River in Aztec, New Mexico. Its purpose is to ensure that managers and the public share the same vision of how best to achieve the monument’s purpose and protect its resources unimpaired for future generations.

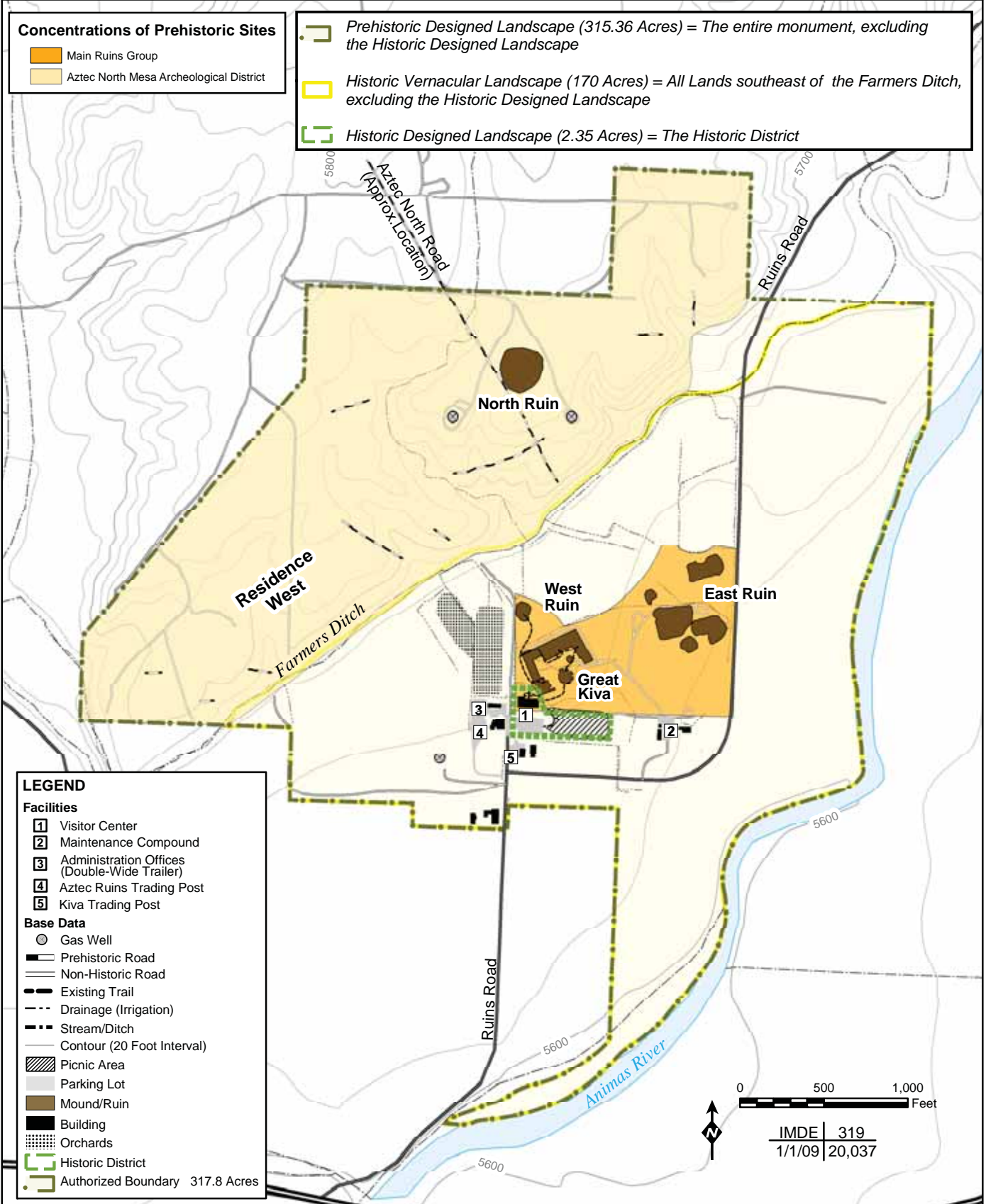


# Aztec Ruins National Monument

## New Mexico

### Cultural Resources

National Park Service  
U.S. Department of the Interior



The GMP describes the general path the National Park Service (NPS) intends to follow in managing Aztec Ruins National Monument over the next 15 to 20 years. The GMP does not provide specific answers to every issue facing the monument; rather, it is a framework to assist National Park Service managers in making decisions today and into the future. More detailed actions regarding the management of some monument resources, such as cultural landscapes and vegetation, will be identified in a separate vegetation and cultural landscapes management plan. More specifically, the GMP:

- Provides general guidance for how to manage resources and provide for visitor understanding, appreciation, and enjoyment.
- Presents a general approach for facilities development.
- Supports the monument's purpose and significance and protects its fundamental resources and values.
- Clearly defines the resource conditions and visitor opportunities to be achieved.
- Ensures that the foundation for decision making has been developed in consultation with an interested public and adopted by National Park Service leadership after sufficient analysis of the benefits, impacts, and economic costs of alternative courses of action.

Because implementation of the GMP is a proposed federal action, the National Environmental Policy Act mandates that the National Park Service considers a range of alternatives, including no action, and discloses the environmental impacts of each alternative. Thus, an environmental assessment is being prepared in conjunction with this GMP for Aztec Ruins National Monument.

Aztec Ruins is currently being managed under a GMP that was completed in 1989. Since it was completed, many of the goals identified in the 1989 plan have been achieved. New issues and planning interests have arisen, warranting a new GMP to provide direction. These interests include the need to:

- Determine desired future conditions for natural and cultural resources, visitor experience, and facilities development for the nearly 300 acres of land that have been added to the monument boundaries since 1988, in addition to the original 27 acres. Inventories and resource knowledge that has been acquired since the 1989 GMP and the changing and projected future operational needs must also be incorporated into these desired future conditions.
- Reassess and make recommendations regarding the development that was prescribed in the 1989 GMP. Some of that development has not been implemented, and some development has occurred that departed from these prescriptions.
- Address potential impacts to monument resources and visitor experience from development that may occur outside, but adjacent to, the monument boundaries, and in association with active gas wells within the monument.
- Explore partnership opportunities with neighbors, the City of Aztec, American Indian tribes, and others to protect resources within and surrounding the monument and to enhance opportunities for enjoyment and understanding by visitors to the monument and residents throughout the region.
- Seek the input of the local community, American Indian tribes, and other interested parties.

## APPROPRIATE USE

Sections 1.4 and 1.5 of *NPS Management Policies 2006* direct that the National Park Service must ensure that uses that are allowed within a unit of the national park system would not cause impairment of, or unacceptable impacts on, park resources and values. A new form of park use may be allowed within a park only after a determination has been made in the professional judgment of the park manager that it will not result in unacceptable impacts.

Section 8.1.2 of *NPS Management Policies 2006* provides evaluation factors for determining appropriate uses. All proposals for park uses are evaluated for:

- consistency with applicable laws, executive orders, regulations, and policies;
- consistency with existing plans for public use and resource management;
- actual and potential effects on park resources and values;
- whether the public interest will be served.

Park managers must continually monitor all park uses to prevent unanticipated and unacceptable impacts. If unanticipated and unacceptable impacts emerge, the park manager must engage in a thoughtful, deliberate process to further manage or constrain the use, or discontinue it.

Further, Section 8.2 of *NPS Management Policies 2006* states: “To provide for enjoyment of the parks, the National Park Service will encourage visitor use activities that

- are appropriate to the purpose for which the park was established, and
- are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
- will foster an understanding of and appreciation for park resources and values, or will promote enjoyment through a direct associations with, interaction with, or relation to park resources; and
- can be sustained without causing unacceptable impacts to park resources and values.”

The primary visitor uses that are currently available or will be provided upon implementation of this GMP at Aztec Ruins National Monument include: 1) viewing and learning about the monument ruins at the visitor center and via the existing and newly proposed interpretive trails to the ruins and 2) new collaboration and partnership activities that would be welcomed and provided at a new community meeting space in the rehabilitated Aztec Ruins Trading Post at the monument. These uses meet the criteria outlined in Section 8.1.2 and Section 8.2 of the *NPS Management Policies 2006*.

Regarding Section 8.1.2, all the management actions outlined in the alternatives presented in Chapter 2, including the Preferred Alternative, are consistent with applicable laws, executive orders, regulations, and policies of the National Park Service as described in “Desired Conditions — From Law and Policy” in this chapter. Secondly, this GMP proposes to establish future public use and resource management direction for the monument that is compatible with or updates existing planning documents; however, it will also establish new resource management direction as suggested by the proposed vegetation and cultural landscapes management plan. Finally, the effects of the proposed alternatives and whether the public interest will be served are evaluated in the impact analyses that are presented by impact topic throughout Chapter 4, “Environmental Consequences.” Additionally, the alternatives proposed in this GMP were determined to serve the public interest by identifying public concerns during scoping and

throughout the planning process, and by ensuring preservation of the monument resources unimpaired for future generations.

As directed by Section 8.2, the visitor uses outlined in the alternatives presented in Chapter 2 and evaluated within this GMP are appropriate to the purpose for which the monument was established (see “Foundation for Planning and Management”), are inspirational and educational, foster an understanding of and appreciation for park resources and values, and can be sustained without causing unacceptable impacts to park resources and values. Therefore, all the visitor activities proposed within this GMP are appropriate uses for Aztec Ruins National Monument.



# GUIDANCE FOR THE PLANNING EFFORT

## MONUMENT MISSION AND GOALS

A mission statement is an overarching concept that speaks to the vision or “big picture” of the national monument over the long term. Mission goals help to determine operational requirements for the national monument from year to year. Together, these provide an overall direction for monument management.

### MONUMENT MISSION STATEMENT

Aztec Ruins National Monument is the keeper of a remarkable community of ruins along the Animas River in northwest New Mexico. These ancient structures of the early Pueblo people are preserved and protected to tell their stories, so that the people of today and future generations can understand and appreciate that multifaceted culture. We work toward that goal in cooperation with monument neighbors, partners, tribes, and others, moving forward together to shape our future.

### MONUMENT MISSION GOALS

#### **Preserve Monument Resources**

Natural and cultural resources and associated values at Aztec Ruins National Monument are protected and maintained in good condition and managed within the broader ecosystem and cultural context of northwest New Mexico.

#### **Provide for Public Understanding and Enjoyment**

Monument visitors and the general public understand and appreciate the purpose, significance, and preservation of Aztec Ruins National Monument and its resources for this and future generations.

Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of facilities, services, and educational opportunities at Aztec Ruins National Monument.

#### **Ensure Organizational Effectiveness**

Aztec Ruins National Monument uses current management practices, systems, and technologies to accomplish its mission in an environmentally sustainable manner.

The National Park Service at Aztec Ruins National Monument increases its managerial capabilities through partnerships that promote appreciation and protection of a shared land heritage.

## FOUNDATION FOR PLANNING AND MANAGEMENT

The foundation for planning and management identifies what is most important about the monument and is a prerequisite for all subsequent planning and decision making. It helps ensure that all stakeholders, including National Park Service managers and staff, understand what is



*West Ruin*

most important about the monument and that all programs and actions contribute to achieving the monument's purpose and other mandates.

This foundation outlines the presidentially and congressionally established purpose of the monument, the significant resources that warranted its designation as a unit of the national park system, the fundamental resources and values that warrant primary consideration during planning and in making management decisions, and the primary interpretive themes that determine what stories and educational information should be communicated to visitors. It also identifies special mandates such as policies or legislative requirements that may apply specifically to Aztec Ruins.

## **MONUMENT PURPOSE**

Each unit in the national park system is established for a specific purpose. Purpose statements convey the intent of the legislation, legislative history, presidential proclamations, and/or other enabling language that established the unit (legislation can be found in Appendix A). Language in the Aztec Ruins presidential proclamations that is appropriate to apply to a statement of purpose includes the following:

“...a ruin of great antiquity and historical interest...”

[do not] “... appropriate, injure, destroy or remove any of the features or objects included within the boundaries...”

“...the preservation of said ruin for the enlightenment and culture of the nation...”

“...a cluster of ruins related in historic and scientific interest...”

“...ruin mounds of unusual prehistoric and scientific value...”

Based on this language, the purpose of Aztec Ruins National Monument is to:

Preserve, protect, and interpret the ancient Pueblo structures and to encourage and conduct scientific research to enhance the understanding of the prehistory of the site.

## **MONUMENT SIGNIFICANCE**

Significance statements describe the elements that distinguish Aztec Ruins as a nationally significant unit of the national park system. The statements reflect the exceptional values and

resources that must be preserved and maintained to achieve the purpose of the unit. These statements help to identify primary interpretive themes, opportunities for visitor understanding and enjoyment, and desirable visitor experiences. They also assist managers in focusing their efforts and limited funding on these key resources and values.

The following statements identify the significance of Aztec Ruins National Monument:

Aztec Ruins is a reflection of the ancestral Pueblo peoples that lived here, choosing this place because of the abundance of life-sustaining elements in this riparian ecosystem, including its spiritual characteristics. The descendants of the people who built and lived in this magnificent architecture continue to follow traditions that remain intricately linked to this sacred place.

Aztec Ruins is an integral component of 200–300 years of cultural cohesiveness and expression that occurred throughout the Four Corners region, from approximately A.D. 1050 to 1300. The site is an important aid to understanding the earlier times of the Pueblo world in this area and, along with Mesa Verde, is an integral component of the larger Chacoan system.



*Hubbard Site*

Aztec Ruins contains some of the most remarkably well-preserved ancestral Pueblo architecture in the Southwest. It is monumental in scale, both in its designed landscape as well as in its individual structures. This planned community is characterized by its symmetrical layout, its unique complex of architectural features that includes rare tri-walled structures, and its unusually well-preserved masonry and wood structures, artifacts, earthworks, and other remains from the late A.D. 1000s to 1300. Original wooden roofs still cover dozens of rooms and have enabled Aztec Ruins to become the best tree-ring-dated

site in the Southwest. The high integrity and importance of the site were additionally recognized in 1987 when Aztec Ruins National Monument, along with Chaco Culture National Historical Park, were together designated a World Heritage Site.

The pioneering excavations of the American Museum of Natural History provided archeological data and explanations that influenced interpretations of cultural history in the San Juan Basin for half a century and the profession as a whole. The reconstruction of the Great Kiva was an unparalleled effort in the history of Southwestern archeology.

## FUNDAMENTAL RESOURCES AND VALUES

Fundamental resources and values are natural and/or cultural resources and related values that warrant priority consideration in planning and management because they are critical to maintaining the monument's purpose and significance. These resources and values can include

natural systems, processes, flora, and fauna; cultural and archeological objects; stories and scenes; and their relationship to visitor enjoyment and satisfaction.

### Fundamental Resources

- Ancestral Pueblo features
  - Main Ruins Group within pre-1988 site boundary (West Ruin Complex and East Ruin Complex)
  - Archeological sites in the surrounding community
  - Ancient Aztec Community cultural landscape
  - Original intact structures
  - Ancient roadways
  - Artifacts
  - Earthworks
  - Original wooden roofs
  - Other features and vegetation contributing to the Prehistoric Designed Landscape (eligible for the National Register of Historic Places)
- Ancestral Pueblo features at Aztec Ruins are part of a much larger Four Corners regional system that includes many Chacoan and other prehistoric communities.

### Fundamental Values

- The preserved ancient structures and landscape features offer opportunities for visitors to learn about, appreciate, and make personal connections to an ancestral Pueblo community.
- Ongoing archeological research contributes knowledge to the understanding of the past.
- Opportunities to explore new methods and techniques for research and preservation of irreplaceable archeological resources continue to be available.
- An opportunity to understand the continuum from ancestral Pueblo communities, to historic uses, to current management by the National Park Service is available to all.
- Many American Indians maintain strong connections to the area. Through collaboration, the National Park Service and American Indians have the opportunity to share information regarding interpretation, management, and conservation of resources. Through collaboration, American Indian oral histories and traditions may be shared at Aztec Ruins.



*Great Kiva, West Ruin*





*View of West Ruin from North Mesa*

### **Other Important Resources and Values**

Although not considered to be fundamental, the monument includes natural processes and human modifications that are important considerations in the planning, management, and maintenance of the monument's fundamental resources and values. These related resources and values are important, but are not as critical to the monument's significance.

- Earl Morris home/visitor center
- Historic District
- Features and vegetation contributing to the Historic Designed Landscape (eligible for the National Register of Historic Places)
- Individual features eligible for the National Register of Historic Places
- Natural systems, consisting of physical and biological functions and processes, and associated populations of plants and animals
- Viewshed within the monument and when looking beyond the monument boundaries
- Opportunities to experience a sense of solitude and/or spiritual connection when exploring the site



*Visitor Center Entrance*



## PRIMARY INTERPRETIVE THEMES

Primary interpretive themes are the most important ideas and concepts communicated to the public about the monument. They are the core of all interpretive programs and media provided to visitors. Interpretive programs provide access to stories by offering services to the public so that they can develop their own emotional and intellectual connections with the monument resources.

- The monumental scale and accessibility of the remarkably well-preserved West Ruin and its associated archeological resources foster contemplation of the rich culture of the ancestral Pueblo builders and offer evocative and inspirational connections to the people themselves.
- The world-class resources of Aztec Ruins provide an opportunity to explore the complexity, diversity, and longevity of the indigenous cultures of the Four Corners region and their relationship to our overall understanding of human history.
- The evolution and interaction of archeological and other scholarly and popular perspectives with indigenous perspectives of Aztec Ruins increase opportunities to understand and appreciate this special place.
- The proximity of the Aztec Ruins landscape to the contemporary City of Aztec provides a rare opportunity to compare and contrast how different people interact with their environment.

## SPECIAL MANDATES AND ADMINISTRATIVE COMMITMENTS



*Drilling on North Mesa*

Special mandates and administrative commitments are legal requirements that apply to a specific unit of the national park system. They are mandated by Congress or by signed agreements with other entities.

### Oil and Gas Rights

Although not mandated in the monument's legislation, when the boundary for Aztec Ruins was expanded in 1988 and land was subsequently acquired, the National Park Service only acquired surface rights for that expansion. Of the approximately 257 acres that are federally owned within the

monument, 149.04 acres are encumbered with third-party mineral rights. The remaining 108 acres in federal ownership are not encumbered. Three active gas wells and two plugged and abandoned sites are located inside the monument. Private mineral ownership and a possibility that undeveloped oil and gas resources occur beneath the monument creates the potential for additional drilling inside the monument and the replacement of existing pipelines in the future.

Owners of nonfederal oil and gas rights within units of the national park system may exercise those rights subject to National Park Service regulations in Title 36 *Code of Federal Regulations*, Part 9, Subpart B (9B Regulations). The regulations require oil and gas operators in National Park

Service units to submit a plan of operations for National Park Service approval. The plan details all activities of the oil and gas development, describes how reclamation will be completed, and provides the basis for performance bonds. The National Park Service uses this information to determine the effects of proposed operations and alternatives on the monument environment, visitor experience, and management and to ensure that the monument's fundamental resources and values are protected. Once approved, the plan serves as the operator's permit.

### **Reserved Use and Occupancy Agreement**

In 2001, the National Park Service entered into a Reserved Use and Occupancy agreement for residential use of a house on Tract 101-22.

### **Easements and Rights-of-Way**

Several tracts are encumbered with rights-of-way for city and county streets, as well as easements for utilities and waterways, and the conveyance of water rights. The most notable of such corridors is the Farmers Ditch that conveys water east to west through the monument along a right-of-way that extends to 50 feet on each side of the ditch centerline. The Farmers Ditch was constructed in 1892. With the acquisition of 1.8 acres of land from the American Museum of Natural History in 1930 (see Presidential Proclamation of 1930 in Appendix A) came "one sixteenth (1/16) of one share in running space in the Farmers Ditch, a community ditch existing under the laws of the state of New Mexico." Although not yet listed, it has been determined to be eligible for listing on the National Register of Historic Places as a site, under Criterion A, at the local level. This determination was made through consultation with the New Mexico State Historic Preservation Officer based on documentation outside monument boundaries. The ditch is operated and maintained by the Lower Animas Water Users Association, which is incorporated with the State of New Mexico.

In addition to special mandates and enabling legislation for the national monument, there are numerous laws and policies that guide the management of Aztec Ruins. They are identified in the section on "Desired Conditions – From Law and Policy," found later in this chapter.



*Farmers Ditch*

## DESIRED CONDITIONS — FROM LAW AND POLICY

This section provides a picture of the overall desired conditions Aztec Ruins strives to achieve, regardless of alternatives, based upon existing laws and policies. As with all units of the national park system, management of Aztec Ruins National Monument is guided by the 1916 act creating the National Park Service, the General Authorities Act of 1970, the act of March 27, 1978, relating to the management of the National Park System, and other applicable federal laws and regulations, such as the National Historic Preservation Act. The National Park Service also has established policies for all units under its stewardship, which can be found in *NPS Management Policies 2006*.

The following table presents an array of resources and values that the National Park Service is required to manage. While the monument focuses its management on fundamental resources and values, it also has legal and policy requirements to manage additional resources. While not all-encompassing of every resource, law, or policy, this table identifies desired conditions and general management strategies for Aztec Ruins that are based on existing laws and policy guidance and that would be implemented in all alternatives.

**Table 1: Desired Conditions**

DESIRED CONDITIONS	RELEVANT LAW AND POLICY GUIDANCE
CULTURAL RESOURCES	
Archeological Resources	
<p>Archeological resources are identified and inventoried, and their significance is determined and documented. Archeological sites are identified and managed so that they are in good condition.</p> <p>Archeological resources are protected in an undisturbed condition, unless it is determined through formal processes that disturbance or natural deterioration is unavoidable.</p> <p>Scientific research and interpretation of archeological resources is conducted to enhance understanding of site prehistory.</p> <p>In those cases where disturbance or deterioration is unavoidable, appropriate mitigation is conducted.</p>	<p>National Historic Preservation Act of 1966, as amended; Executive Order 11593, Protection and Enhancement of the Cultural Environment; Archeological and Historic Preservation Act; Archaeological Resources Protection Act of 1979; the Secretary of the Interior's Standards for the Treatment of Historic Properties; Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation; Programmatic Agreement among the NPS, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008); Protection of Historic Properties (36 CFR 800); Director's Order 28, Cultural Resource Management; Director's Order 28A, Archeology; Native American Graves Protection and Repatriation Act; American Indian Religious Freedom Act of 1978; <i>NPS Management Policies 2006</i></p>
Cultural Landscapes	
<p>The treatment of a cultural landscape will preserve significant physical attributes, biotic systems, and uses when those uses contribute to historical significance. Treatment decisions will be based on a cultural landscape's historical significance over time, existing conditions, and use. Treatment decisions will consider both the natural and built characteristics and features of a landscape, the dynamics inherent in natural processes and continued use, and the concerns of traditionally associated peoples.</p> <p>The treatment implemented will be based on sound preservation practices to enable long-term preservation of a resource's historic features, qualities, and materials. There are three types of treatment for extant cultural landscapes: preservation, rehabilitation, and restoration.</p>	<p>National Historic Preservation Act; Executive Order 11593, Protection and Enhancement of the Cultural Environment; Archeological and Historic Preservation Act; the Secretary of the Interior's Standards for the Treatment of Historic Properties; Programmatic Agreement among the NPS, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008); <i>NPS Management Policies 2006</i></p>

DESIRED CONDITIONS	RELEVANT LAW AND POLICY GUIDANCE
Cultural landscapes are listed on the National Register of Historic Places when their significant cultural values have been documented and evaluated within appropriate thematic contexts and physical investigation determines that they retain integrity. Cultural landscapes are classified in the National Register as sites or districts or may be included as contributing elements of larger districts.	
<b>Ethnographic Resources</b>	
<p>Ethnographic information will be collected through collaborative research that recognizes the sensitive nature of such information.</p> <p>The National Park Service acknowledges that American Indian tribes treat specific places containing certain natural and cultural resources as sacred places having established religious meaning and as locales of private ceremonial activities. Consistent with E.O. 13007, the National Park Service will, to the extent practicable, accommodate access to and ceremonial use of Indian sacred sites by religious practitioners from recognized American Indian tribes and avoid adversely affecting the physical integrity of such sacred sites.</p>	Executive Order 13007 on American Indian Sacred Sites; Director's Order 28, Cultural Resources Management; American Indian Religious Freedom Act; <i>NPS Management Policies 2006</i>
<b>Historic Structures</b>	
<p>Historic properties are inventoried, and their significance and integrity are evaluated under National Register criteria.</p> <p>The qualities that contribute to the eligibility for listing, or the actual listing of historic properties on the NRHP are protected in accordance with the Secretary of the Interior's Standards (unless it is determined through a formal process that disturbance or natural deterioration is unavoidable).</p>	Historic Sites, Buildings and Antiquities Act of 1935; Archeological and Historic Preservation Act; National Historic Preservation Act; National Register of Historic Places (36 CFR Part 60); the Secretary of the Interior's Standards for the Treatment of Historic Properties; Programmatic Agreement among the NPS, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008); <i>NPS Management Policies 2006</i>
<b>Museum Collections</b>	
<p>The monument will protect, preserve, provide access to, and use objects, specimens, and archival and manuscript collections to aid understanding among visitors and to advance knowledge in the humanities and sciences. As appropriate, the monument staff will consult with culturally affiliated or traditionally associated peoples before treating or reproducing items in NPS collections that are subject to the Native American Graves Protection and Repatriation Act.</p>	National Historic Preservation Act; Historic Sites, Buildings, and Antiquities Act; Museum Act of 1955, as amended; Archaeological Resources Protection Act; Antiquities Act of 1906; Native American Graves Protection and Repatriation Act; Director's Order 24, Museum Collections; <i>NPS Management Policies 2006</i>
<b>NATURAL RESOURCES</b>	
<b>Air Quality</b>	
Aztec Ruins' Class II air quality meets ambient air quality standards for specified pollutants. Activities in the monument do not contribute to the deterioration of air quality.	1963 Clean Air Act, as amended (42 U.S.C. 7401 et seq.); <i>NPS Management Policies 2006</i>



DESIRED CONDITIONS	RELEVANT LAW AND POLICY GUIDANCE
<b>Native and Exotic Species</b>	
Populations of native plant species function in as natural a condition as possible, except where special management considerations are warranted. (Areas with special management considerations will be determined through management zoning decisions in the GMP.)  The National Park Service will strive to restore extirpated native plant species to the monument when specific criteria are met.  Management of populations of exotic plant species, up to and including eradication, will be undertaken wherever such species threaten monument resources or public health and when control is prudent and feasible.	Executive Order 13112, Invasive Species; NPS <i>Management Policies 2006</i>
<b>Cultural Soundscapes</b>	
Cultural soundscapes at Aztec Ruins are identified and maintained and, where possible, restored to a level consistent with the cultural landscapes.	Director's Order 47, Sound Preservation and Noise Management; NPS <i>Management Policies 2006</i>
<b>Night Sky</b>	
Opportunities to view natural lightscapes at the monument are identified and maintained or, where possible, improved.	NPS <i>Management Policies 2006</i>
<b>Species of Concern</b>	
Federal and state listed threatened and endangered species, other special status species, and their habitats are protected and sustained.	Endangered Species Act, NPS <i>Management Policies 2006</i>
<b>Water Resources</b>	
Consumptive use of water in the monument is efficient and frugal. Facilities and programs are maintained and operated to avoid pollution of surface waters and groundwaters. Floodplains will be protected, and potential flood hazards will be minimized. Waterflows through the Farmers Ditch will be maintained to fulfill legal obligations.	Clean Water Act (1948 and as amended in 1956, 1972, and 1977); Section 404 of the Clean Water Act; Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands; Director's Orders 77-1 and 77-2; NPS <i>Management Policies 2006</i>
<b>VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES</b>	
Visitors understand and appreciate monument values and resources and have the information necessary to adapt to monument environments. Visitors have opportunities to enjoy the monument in a way that leave monument resources unimpaired for future generations.  Basic visitor needs are met, in keeping with monument purposes.  All reasonable efforts will be made to make facilities, programs, and services accessible to, and usable by, all people, including those with disabilities.	NPS Organic Act; monument's presidential proclamation; 36 CFR; Americans with Disabilities Act; Architectural Barriers Act; Rehabilitation Act; NPS <i>Management Policies 2006</i>
<b>FACILITIES AND OPERATIONS</b>	
Aztec Ruins will provide visitor and administrative facilities and services that are necessary, appropriate, and consistent with the conservation of monument resources and values. Facilities will be harmonious with monument resources, compatible with natural processes, esthetically pleasing, functional, energy- and water-efficient, cost-effective, universally designed, and as welcoming as	Executive Order 12873 mandates federal agency recycling and waste prevention; Executive Order 12902 mandates energy efficiency and water conservation at federal facilities; NPS <i>Management Policies 2006</i>



DESIRED CONDITIONS	RELEVANT LAW AND POLICY GUIDANCE
possible to all segments of the population. National Park Service facilities and operations will demonstrate environmental leadership by incorporating sustainable practices to the maximum extent practicable in planning, design, siting, construction, and maintenance.	
<b>OUTREACH AND PARTNERSHIPS</b>	
<b>Communication with American Indian Tribes and Other Entities</b>	
<p>Other federal agencies, state and local governments, potentially affected American Indian and other communities, interest groups, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation will be given opportunities to become informed about and comment on anticipated NPS actions at the earliest practicable time.</p> <p>All agencies shall communicate with tribal governments prior to taking actions that affect federally recognized tribal governments. These discussions are to be open and candid so that all interested parties may evaluate for themselves the potential impact of relevant proposals. The National Park Service will regularly correspond with traditionally associated American Indians regarding planning, management, and operational decisions that affect subsistence activities, sacred materials or places, or other ethnographic resources with which they are historically associated.</p>	<p>Executive Order 13007 on American Indian Sacred Sites; National Historic Preservation Act; Director's Order 75A, Civic Engagement and Public Involvement; Programmatic Agreement among the NPS, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008); Executive Order 11593, Protection and Enhancement of the Cultural Environment; American Indian Religious Freedom Act; American Indian Graves Protection and Repatriation Act; American Indian Religious Freedom Act; Presidential Memorandum of April 29, 1994, on Government-to-Government Relations with Tribal Governments; NPS <i>Management Policies 2006</i></p>
<b>Public Partnerships</b>	
<p>Public participation in planning and decision making ensures that the National Park Service fully understands and considers the public's interests in Aztec Ruins National Monument, which is part of their national heritage, cultural traditions, and community surroundings. The National Park Service will actively seek out and consult with existing and potential visitors, neighbors, and people with traditional cultural ties to the monument, scientists and scholars, cooperating associations, the local community, other partners, and government agencies. The National Park Service will work cooperatively with others to improve the condition of the monument; to enhance public service; and to integrate the monument into sustainable ecological, cultural, and socioeconomic systems.</p> <p>In the spirit of partnership, the National Park Service will also seek opportunities for cooperative management agreements with state or local agencies that will allow for more effective and efficient management of the monument, as authorized by Section 802 of the National Parks Omnibus Management Act of 1998.</p> <p>Possible conflicts between the proposed action and land use plans, policies, or controls for the area concerned, including local and state governments, or American Indian tribes, and the extent to which the monument will reconcile the conflicts are identified in National Park Service environmental documents.</p>	<p>National Environmental Policy Act; NPS <i>Management Policies 2006</i></p>

## RESOURCE AREAS

Differences in resource values and visitor opportunities generally exist within different areas of a national park unit. At Aztec Ruins, a resource area is a unit of land containing a composition of cultural and natural resources and values, especially fundamental resources and values, that are interrelated and make up a component of the purpose and significance of Aztec Ruins National Monument. It is a tool to help organize the resources and values of the monument into geographic areas for planning purposes. Resources and values include archeological resources, such as above-ground ruins, buried artifacts, and prehistoric occupied sites; historic structures; cultural landscapes; topography; geology; hydrology; vegetation; wildlife and wildlife habitat; scenic quality; and opportunities for visitor experience and understanding.

Resource areas were identified as one of the first steps in identifying management zones and alternatives for Aztec Ruins during the early stages of the GMP planning process (see Chapter 2). Nine different resource areas have been identified within the monument: Residence West; North Ruin; Flats; Alluvial Fan; West Ruin; East Ruin; Agricultural; Floodplain; and Pasture. They are shown on the Resource Areas map and are described in the table titled “Resource Areas and Attributes” in Appendix B.

## PLANNING ISSUES AND OPPORTUNITIES

While the monument has overall direction from laws and policies that apply to the National Park Service, the unique mission and fundamental resources and values require more specific guidance from a GMP. There are issues and opportunities for which there are multiple management directions that could be pursued, and this GMP provides an opportunity to look at a range of actions that are compatible with the monument’s mission and that fit within legal and policy constraints.

As one of the first steps in the planning process, the planning team examined issues, priorities, concerns, and potential opportunities related to the future management of the site, particularly those that affected fundamental resources and values. They were later elaborated upon during initial scoping and information-gathering meetings with American Indian tribes, federal and state agencies, and the general public. The major issues and opportunities that need to be and are addressed by this GMP are in the areas of resource stewardship — especially archeology and cultural landscapes — visitor experience and educational opportunities, facilities, and public outreach and partnerships. Those listed below expand upon and provide more detail on the general issues and opportunities identified under “Purpose and Need for the General Management Plan.”

## ARCHEOLOGICAL RESOURCES

Archeological preservation activities in the past have been focused mainly at West Ruin. Because other ruins exist within the national monument boundaries, there are opportunities to expand preservation activities within the monument as well as look region-wide at strategies to protect related resources throughout the area.

Water infiltration into the ruins from irrigation practices, among other contributors, has been a chronic problem since the monument was established. This infiltration has caused deterioration

of the ruins and degradation of buried archeological resources. Methods of resolving this problem are addressed in this GMP.

## **CULTURAL LANDSCAPES**

Three different cultural landscapes have been identified at Aztec Ruins National Monument, all of which overlap, and which have varying degrees of importance in relation to the purpose of the monument and the significance of its resources. As a result, there is a potential for conflicting outcomes from one landscape to another in managing the vegetation, structures, and other resources within them. This GMP gives guidance as to the future management of the landscapes to reduce or eliminate conflicting outcomes. More detailed information regarding the implementation of that guidance will be contained in a future vegetation and cultural landscapes management plan.

## **VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES**

Currently opportunities for visitors to explore and learn about the monument are centered at the visitor center and the West Ruin interpretive trail. Opportunities are available to expand beyond this existing visitor experience to include the East Ruin within the Main Ruins Group (27-acre area that comprised the monument until the last expansion) and the North Ruin in the Aztec North Mesa Archeological District. Aztec Ruins National Monument is part of the extensive Chacoan regional network and other prehistoric communities; thus, there are also many opportunities to further research and expand the depth of interpretive stories and the breadth of experiences, both on-site and in the surrounding region.

Involving the tribes who are descendents of these ancestral Pueblo peoples in providing stories, cultural demonstrations, and other experiences for visitors is an important step in expanding these visitor experiences. However, the opportunity to seamlessly relate stories and provide cultural demonstrations, such as heritage farming, is limited by lack of space. Current facilities, such as the visitor center, are fully utilized for other functions. Space is needed that allows for visitors, such as school groups, to interact with the tribal customs that are relevant to the ruins and its peoples and to host educational workshops and research functions that also relate to the monument's resources.

There is also an opportunity to further involve these tribes in presenting a more balanced interpretation of the site by updating current museum displays to incorporate a wider perspective of cultures than is currently represented. Many vacant spaces exist in the monument's museum because sacred items, photographs depicting burials, and funerary objects and human remains have been removed from exhibits in response to National Park Service management policies and to culturally affiliated tribes' expressed concerns. Tribal participation throughout the monument could meaningfully enhance a visitor's experience of past and present tribal customs and practices as they relate to the monument.

## **FACILITIES AND OPERATIONS**

Administrative facilities and space within the monument continue to be inadequate for management needs. Although this issue was addressed by the 1989 GMP, along with other recommendations, such as relocating the maintenance complex, related actions proposed by that GMP have not been enacted. This GMP revisits those issues and makes new recommendations that are more environmentally sound, aesthetically appealing, sensitive to local tribal concerns, and cost effective than the proposals of the former GMP. Rehabilitation and expansion of existing buildings are also considered to address the need within the monument for space where

resource-related functions, such as American Indian cultural demonstrations and education sessions, could be conducted.

## **OUTREACH AND PARTNERSHIPS**

Aztec Ruins currently has a number of relationships with associated American Indian tribes, local and state governments, and neighboring organizations. There are opportunities to expand outreach and partnerships to identify and achieve common goals regarding protecting and enhancing the understanding of the cultural resources and stories relating to the unique ancient Pueblo culture of the area.

## **RELATIONSHIP OF THE GENERAL MANAGEMENT PLAN TO OTHER PLANNING EFFORTS**

Several plans have influenced or would be influenced by the approved GMP for Aztec Ruins National Monument. These plans have been prepared or will be prepared by the National Park Service and are described here along with their relationship to the GMP.

## **VEGETATION AND CULTURAL LANDSCAPES MANAGEMENT PLAN**

Cultural resources, the Animas River and riparian area, upland and lowland vegetation, wildlife, and structures and plantings from National Park Service and agricultural development all combine to make up the overall landscape of Aztec Ruins National Monument. To address monument resources in an integrated way and to develop vegetation and landscape treatment prescriptions that integrate and balance cultural and natural resource concerns, a vegetation and cultural landscapes management plan is being prepared to assist in implementing desired future conditions identified in the GMP. It is being produced by monument staff and natural and cultural resource specialists under contract for the plan and will address treatment of prehistoric and historic resources, in addition to vegetation. Just as the GMP will provide direction as to what the desired futures are regarding cultural and natural resources, the vegetation and cultural landscapes management plan will provide direction on how those futures will be realized through implementation within the monument.

## **FIRE MANAGEMENT PLAN**

The NPS *Management Policies 2006* and NPS Director's Order 18 both require that each national park with vegetation capable of burning prepare a wildland fire management plan to guide a fire management program that is responsible to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities. Aztec Ruins National Monument contains vegetation within its authorized boundary capable of burning, and therefore, as a unit of the National Park Service, requires a fire management plan. The plan is critical to any management decision. The following is a summary of fire management needs:

- Guide the decision-making process, where safety, social, political, and resource values are evaluated, and appropriate management strategies are identified for wildland fires.
- Provide a framework for fuels management strategies through the use of mechanical treatments and prescribed fire.
- Provide a framework to be able to plan and implement a wildland fire program across agency boundaries.

To meet these needs, trees, shrubs, grasses, and other ground cover may require selected vegetative clearing to reduce the chance of unwanted wildfires and associated damage to cultural resources and other facilities. These requirements have been integrated into this GMP and, where relevant, have been noted in the alternatives.

### **COMPREHENSIVE INTERPRETIVE PLAN**

A comprehensive interpretive plan for Aztec Ruins National Monument was launched in the fall of 2003 with a series of workshops involving monument staff, community members, American Indian tribes, and other interested parties. The comprehensive interpretive plan is the basis for programmatic decisions regarding interpretation in the monument. One of the goals of the plan is to improve the interpretive program at the national monument, regardless of which alternative in this GMP is selected for implementation. Ultimately, the comprehensive interpretive plan will help implement and support the actions outlined in the Preferred Alternative and will be finished following the completion of the planning process for the GMP. The comprehensive interpretive plan will include specifics for new interpretive exhibits, which are expected to occupy nearly 2,000 square feet of space in the visitor center. Associated costs for planning, design, fabrication, and installation of the exhibits have been addressed by work related to the comprehensive interpretive plan.

### **RESOURCES AND VALUES AT STAKE IN THE PLANNING PROCESS**

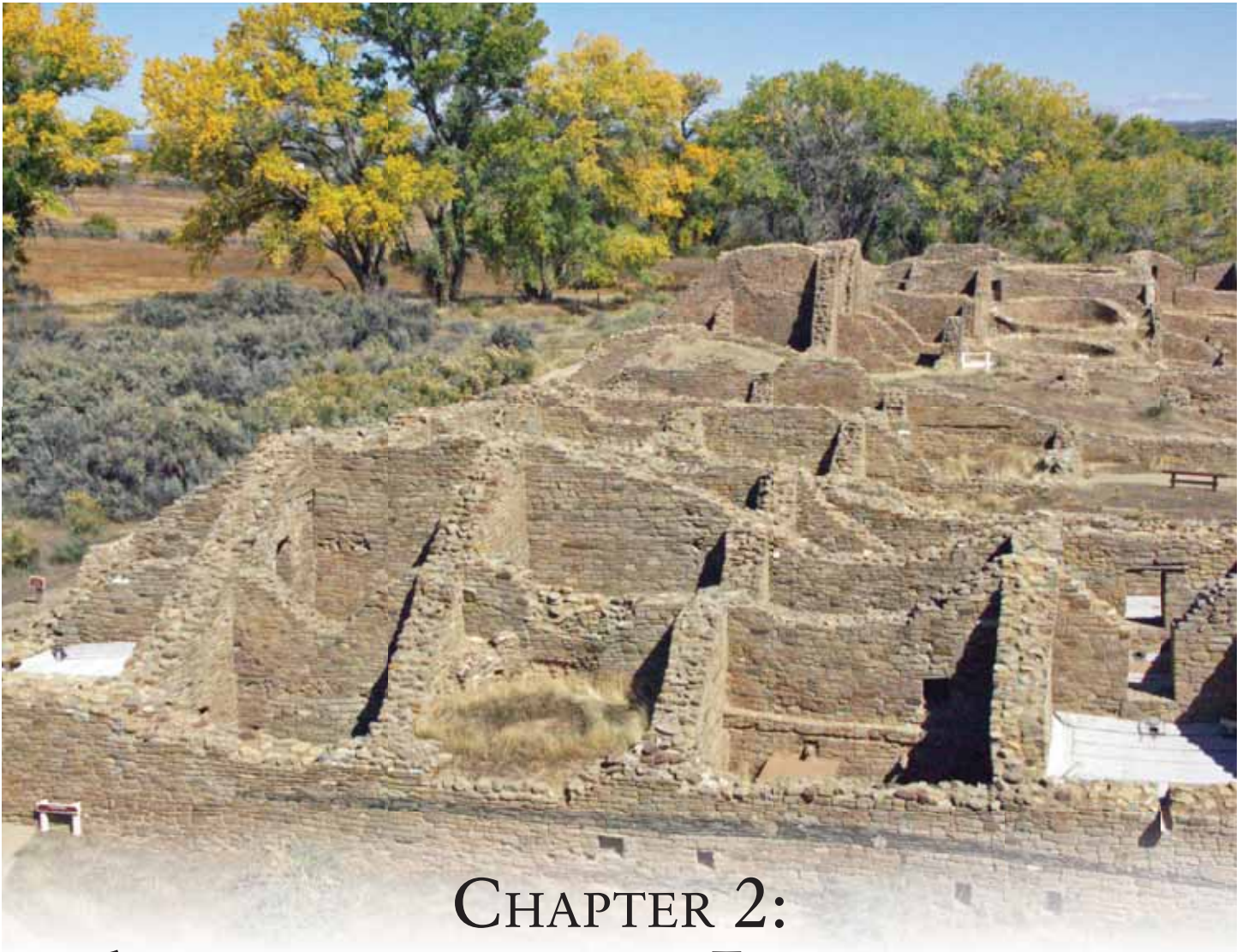
An important part of planning is to identify the environmental consequences of choosing one management alternative over another. To assist in this decision, general management plans are typically accompanied by an environmental analysis that describes the potential impacts of actions in each alternative on monument resources, visitors, and neighbors. An environmental assessment was prepared with this plan rather than an environmental impact statement, as allowed by *NPS Management Policies 2006*, because the anticipated level of public controversy is low and no significant impacts are anticipated.

Potential impact topics for this plan were identified based on the fundamental and other resources and values of the monument, staff subject-matter expertise, issues and concerns expressed by the public and other agencies early in the planning process, and federal laws and other legal requirements that include the Council on Environmental Quality guidelines, Advisory Council on Historic Preservation regulations (36 CFR 800), and *NPS Management Policies 2006*. Many of these laws, policies, and directives are identified in the earlier section entitled “Desired Conditions — From Law and Policy.” The impact topics were further screened and then retained for detailed analysis if appreciable impacts could occur from the actions of the alternatives identified in Chapter 2. Topics that were not associated with appreciable impacts were dismissed from further detailed analysis. The reasons they were dismissed are provided in Chapter 3, “Affected Environment.” Listed in Table 2, the impact topics that have been retained serve to focus the environmental analysis and to ensure the relevance of impact evaluation. They are described in more detail in Chapter 3, “Affected Environment,” followed by the impacts of the alternatives on each impact topic in Chapter 4, “Environmental Consequences.”



**Table 2: Impact Topics**

<b>IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS</b>	<b>IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS</b>
Archeological Resources	Historic Structures
Cultural Landscapes	Ethnographic Resources
Vegetation	Indian Trust Resources
Wildlife	Museum Collections
Special Status Species	Air Quality
Visitor Experience and Educational Opportunities	Water Resources
Socioeconomic Environment	Floodplains and Wetlands
Monument Operations	Topography, Geology, and Soils
	Night Sky
	Cultural Soundscapes
	Prime and Unique Farmland
	Environmental Justice



## CHAPTER 2: ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

To develop the General Management Plan alternatives presented in this chapter, the National Park Service planning team gathered and analyzed information on monument cultural and natural resources, visitor use patterns, and desired visitor experiences.





## INTRODUCTION TO THE ALTERNATIVES

The primary purpose of this chapter is to present alternative ways that Aztec Ruins National Monument could be managed in the future. Of the numerous options that were considered, three alternatives are described in detail. They are Alternative 1: No Action, Alternative 2, and Alternative 3: Preferred Alternative. Actions that would be implemented under all three of the alternatives are described just prior to the alternatives in the section called “Actions Common to All Alternatives.” Actions that were considered, but dismissed from detailed analysis, are described after the alternatives, along with the reasons for dismissal. Tables 5 and 6, respectively, provide a summary of the alternatives that highlights the differences among their proposed actions and a summary of environmental consequences, or impacts, that could occur as a result of implementing each alternative.

Alternative 1, the no-action alternative, represents a continuation of existing conditions and management strategies at Aztec Ruins. It is included as a baseline for comparing the environmental consequences of implementing Alternatives 2 and 3, the action alternatives. These alternatives, each of which is consistent with the monument’s purpose, significance, and fundamental resources and values, present different ways to manage resources, visitor use, and facilities within the national monument. They address the major issues and opportunities facing the national monument and supplement the desired conditions guided by law and policy that were described in Chapter 1.

To develop the GMP alternatives presented in this chapter, the National Park Service planning team first gathered and analyzed information on monument cultural and natural resources, visitor use patterns, and desired visitor experiences. Scoping comments from tribal representatives, government agencies, local community residents and officials, organizations, and the general public also helped shape and refine each alternative (see Chapter 5 for summary of public comments).

The team also developed a set of management zones that prescribe desired futures for resource management, visitor use and understanding, and facilities development for four separate geographical areas within the monument. Each zone may have a different carrying capacity or level of visitor use that can be accommodated without degrading resource conditions or the visitor experience. The management zones and carrying capacity are described prior to the alternatives to set the stage for the actions that are proposed in the alternatives.

Following public review of the GMP/EA, the National Park Service will evaluate comments from other federal agencies, organizations, businesses, and individuals in preparation for a decision document for approval of the plan. This document will outline the selection of an alternative for implementation and will be signed by the National Park Service regional director. Once it is signed, the plan can then be implemented as funding and management priorities allow.

## MANAGEMENT ZONES

Management zones are different geographical areas within the national monument wherein specific resource conditions and preservation concerns, visitor opportunities, development, and management approaches are to be achieved and maintained. Similar to city or county zoning, these management zones provide predictable expectations for resource conditions and visitor



experiences in different locations of the monument. Whereas the desired conditions that were discussed in Chapter 1 under “Desired Conditions — From Law and Policy” pertain to the entire monument as a whole, the desired conditions described for the management zones may vary from zone to zone, depending primarily upon the cultural and natural resources that are contained in each zone. However, the desired conditions associated with all of the management zones are compatible with the monument-wide desired conditions from law and policy.

Management zones are applied to all 317.8 acres within the monument boundary, although approximately 19% of these lands are in private or city and county ownership. These lands would be managed to achieve the desired conditions of the overlaying management zone if the land was acquired by the National Park Service in the future.

### **MANAGEMENT ZONES FOR ALTERNATIVE 1: NO ACTION**

Alternative 1 would be managed under the zoning scheme identified in the 1989 GMP and Development Concept Plan for Aztec Ruins that was developed following the monument’s 1988 expansion from approximately 27 acres to 317.8 acres. The original monument boundary (pre-1988) is identified on the Management Zones map. In this 1989 GMP, all 317.8 acres were designated as a historic zone.

### **MANAGEMENT ZONES FOR ALTERNATIVES 2 AND 3: ACTION ALTERNATIVES**

For some National Park Service units, the layout or location of the management zones within the park varies by action alternative. However, at Aztec Ruins, the planning team developed a proposed zoning layout that is the same for both action alternatives. Although some actions that achieve the desired conditions for a particular zone may vary between the alternatives, the desired conditions in each zone are the same for Alternatives 2 and 3.

Four management zones have been developed for Aztec Ruins and applied to Alternatives 2 and 3. They are listed in the relative order of intensity of visitor use and overall activity anticipated in each zone, from lowest to highest. This zoning scheme will be implemented through this GMP.

- *Resource Preservation Emphasis Zone:* 55 acres of land that contains extensive archeological sites of relatively small size and limited potential for interpretation.
- *Extended Learning Zone:* 144 acres of accessible land that contains some remnants of prehistoric and historic elements and is appropriate for limited visitor use and facilities development.
- *Essential Learning Zone:* 97 acres of land that contains the most important and greatest concentration of prehistoric archeological ruins and artifacts in the monument. This area is the most appropriate for on-site visitor access in order to communicate the primary purpose of the monument.
- *Development Zone:* 22 acres of land that contains the greatest concentration of historic and more modern structures and utilities. This area is most appropriate for development of facilities necessary to operate the monument and provide for visitor services, without impinging upon the prehistoric resources.

The four management zones are geographically separate from each other. Together, they encompass all 317.8 acres of Aztec Ruins National Monument. The management zones overlay the resource areas and three different cultural landscapes. These three categories of land descriptors (resource areas, cultural landscapes, and management zones) were established to facilitate different planning functions. The resource areas described in Chapter 1 and in Appendix B grouped related resources together and facilitated the creation and application of management zones. Cultural landscapes may occur within or extend across the boundary of a management zone. As noted below, the resource condition of each management zone would ensure appropriate management of the cultural landscapes within the zone.

The layout of the management zones is shown on the Management Zones map. A description of each zone is contained in the following table, including desired resource conditions, visitor experience, and appropriate facilities development.

# Aztec Ruins National Monument

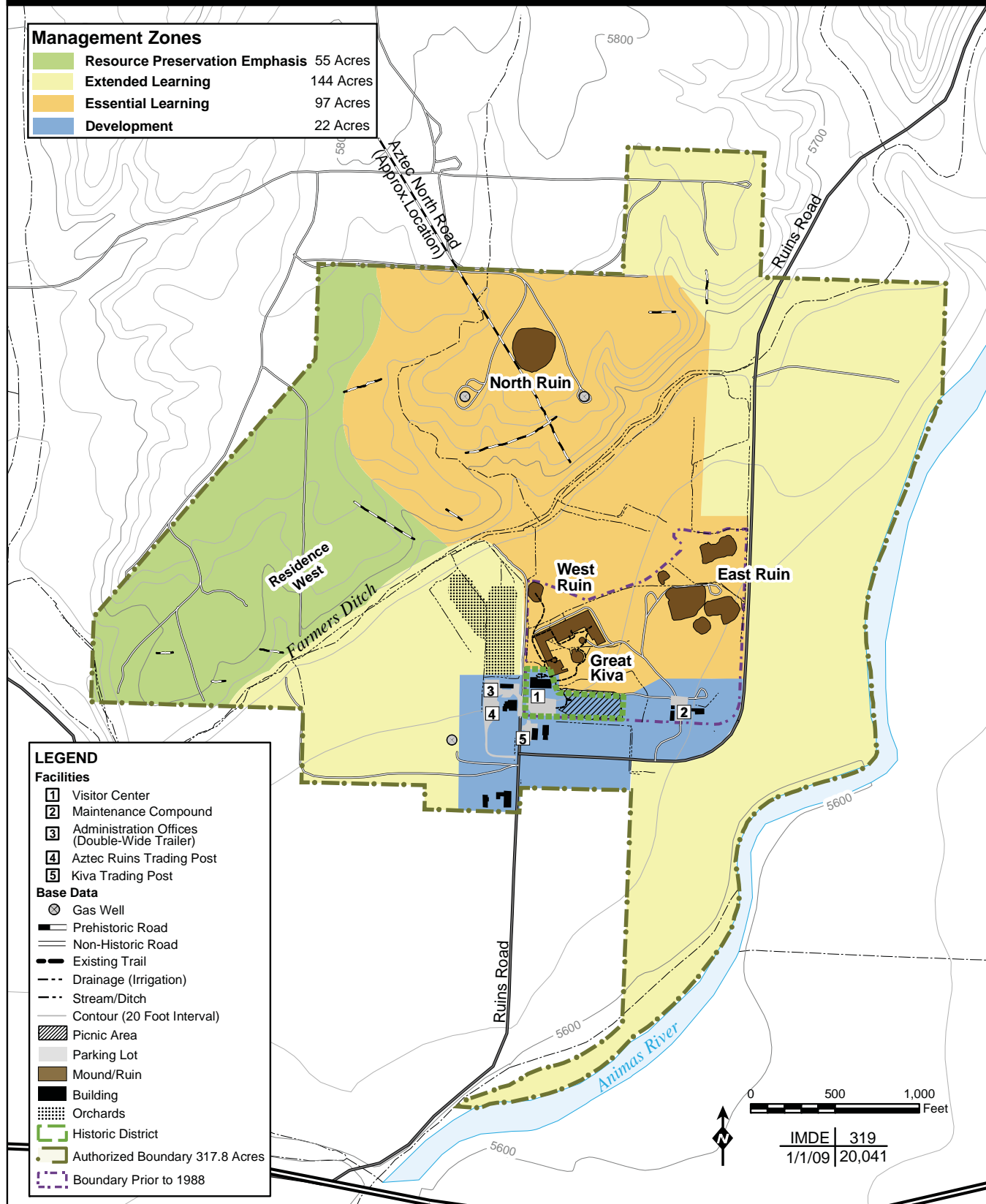
## New Mexico

National Park Service  
U.S. Department of the Interior



### Management Zones

Management Zones	
Resource Preservation Emphasis	55 Acres
Extended Learning	144 Acres
Essential Learning	97 Acres
Development	22 Acres



**Table 3: Description Of Desired Resource Conditions, Visitor Experience, And Facility Development By Management Zone**

	RESOURCE PRESERVATION EMPHASIS ZONE	EXTENDED LEARNING ZONE	ESSENTIAL LEARNING ZONE	DEVELOPMENT ZONE
<b>OVERVIEW</b>	The dense concentration of prehistoric sites and other landscape features in this zone consists mainly of small sites with limited interpretive potential. The archeological resources have good research potential and are protected. Visitors experience this zone primarily from the outside looking in and are allowed on-site for special purposes, such as scientific research or guided walks. This entire zone lies within the Prehistoric Designed Landscape.	The scattered prehistoric and historic resources in this zone are protected, while providing occasional visitor access for extended interpretive opportunities. This entire zone lies within the Prehistoric Designed Landscape. The section of this zone that is south of the Farmers Ditch also lies within the Historic Vernacular Landscape.	The high concentration of prehistoric archeological ruins and artifacts in this zone are protected, while allowing visitors to get intimately close to resources and have opportunities for deep understanding and appreciation. As with the Extended Learning Zone, the entire Essential Learning Zone lies within the Prehistoric Designed Landscape. The section of this zone that is south of the Farmers Ditch also lies within the Historic Vernacular Landscape.	This area is appropriate for concentrating visitor services and facilities as well as administrative functions. This zone contains parts of the Prehistoric Designed Landscape and the Historic Vernacular Landscape. It also contains the Historic Designed Landscape in its entirety. The historic resources within the Historic Designed Landscape and the relatively lighter distribution of prehistoric resources within this zone are all protected.
<b>TOTAL ACRES</b>	55	144	97	22
<b>DESIRED RESOURCE CONDITION</b> <b>Overall</b>	Protection of sensitive or fundamental natural and cultural resources is the highest priority of this zone, including fragile and/or unique prehistoric resources, endangered species, and other resources.	Sensitive natural and cultural resources are protected. Minor changes are allowed for occasional visitor or operational access.	Sensitive natural and cultural resources are protected. Moderate changes are allowed for opportunities for visitor understanding.	Sensitive natural and cultural resources are protected. However, there may be major changes to accommodate primary visitor services and necessary monument operations.
<b>Archeological Resources</b>	The dense concentration of prehistoric sites in this zone is maintained in good condition and protected against further damage. The SW portion of the Aztec North Mesa Archeological District extends into this zone. It contains numerous small to medium-sized sites, many of them impacted by past looters who have dug into ancient structures and middens. Protection against further unauthorized surface artifact collection also is	Prehistoric sites in this zone are improved in condition and protected against further damage. The NE portion of the Aztec North Mesa Archeological District extends into this zone, but most of the zone is outside the district. The zone contains few sites, but some are fairly large and have been severely impacted by various development; a large site complex within the North Mesa District was heavily damaged by mechanical excavation before the	Prehistoric sites in this zone are maintained in good condition and protected against further damage. The Main Ruins Group (including the West Ruin and East Ruin complexes) and the central part of the Aztec North Mesa Archeological District are located in this zone. Several additional important ruins, buried architectural sites, ranging from small to fairly large, and other ancestral Pueblo sites are located in this zone. Continued	Further damage to prehistoric sites in this zone is prevented or mitigated through documentation and data recovery. Sites are fairly scarce, but difficult to identify and evaluate because of past development. Future actions are assessed and monitored, and archeological sites are preserved wherever possible. The most extensive subsurface site (LA 1674) is located on either side of Ruins Road in the SE part of this zone.



	RESOURCE PRESERVATION EMPHASIS ZONE	EXTENDED LEARNING ZONE	ESSENTIAL LEARNING ZONE	DEVELOPMENT ZONE
<b>Archeological Resources</b> (continued)	needed. Backfilling and other restoration of damaged sites may be conducted.	property was acquired by the National Park Service. Backfilling and restoration of this area is especially critical. Significant archeological sites in the southern part of the zone that have not been acquired by the National Park Service should be acquired and afforded protection and preservation.	backfilling and fill levels reduction at West Ruin will enhance preservation of this excavated site; preservation of similar differential fill level impacts at East Ruin would also be beneficial. Vigorous additional stabilization and preservation maintenance throughout the Main Ruins Group is needed to maintain these resources in good condition. The North Mesa sites (including North Ruin) are largely buried, but impacts of further gas development should be avoided.	
<b>Cultural Landscapes</b>	Features of the Prehistoric Designed Landscape are preserved.	Features of the Prehistoric Designed Landscape are preserved as well as restored. Most features of the Historic Vernacular Landscape that are in conflict with the Prehistoric Designed Landscape are removed. Specifically, the apple and pear orchard would be removed and irrigation discontinued. The Farmers Ditch, a special mandate, remains.	Features of the Prehistoric Designed Landscape are preserved as well as restored. Most features of the Historic Vernacular Landscape that are in conflict with the Prehistoric Designed Landscape are removed. The Farmers Ditch, a special mandate, and other irrigation features and laterals remain.	Features of the Historic Designed Landscape (Historic District) and Prehistoric Designed Landscape are protected.
<b>Vegetation</b>	Native species are dominant and restored where appropriate. Nonnative invasive plants are removed or controlled.  The landscape is primarily self-sustaining, and little maintenance is required.	Native species are dominant and restored where appropriate. Nonnative invasive plants are removed or controlled.	Native species are dominant and restored where appropriate. Nonnative invasive plants are removed or controlled.	Native and nonnative species, including ornamentals related to the historic designed landscape, may be present.  Hazard trees are removed and replaced, as needed for the function and integrity of the Historic District.

	RESOURCE PRESERVATION EMPHASIS ZONE	EXTENDED LEARNING ZONE	ESSENTIAL LEARNING ZONE	DEVELOPMENT ZONE
<b>VISITOR EXPERIENCE</b>	The primary visitor experience is viewing the Prehistoric Designed Landscape from trails outside of this zone. Visitors have unobstructed views of the Prehistoric Designed Landscape that evokes a scene similar to the period of Pueblo occupation, to the greatest extent possible. The National Park Service may authorize access for scientific research, traditional cultural activities, resource monitoring, and specialized guided tours. Visitors will also benefit from the research conducted in this zone.	Visitor access to most of this zone is during special occasions, such as tribal demonstrations and ranger-guided interpretive walks. Part of the Ruins Road passes through this zone. Outside of the road corridor are opportunities for solitude and learning. Activities require moderate physical exertion. Appropriate visitor activities include contemplative strolling, interpretive hiking, attending educational demonstrations, viewing resources, and taking photographs.	Visitors have an opportunity to experience the most important cultural resources of the monument firsthand, and to acquire the greatest understanding of the site and its stories. Interpretation of primary themes and learning about fundamental resources and values are important elements of this experience. Appropriate activities include walking, interpretive walks (ranger-led or self-guided), sightseeing, and photography. Activities require some physical exertion, and while opportunities for solitude could be available, there exists a moderate to high probability of encountering other visitors.	As the primary entrance to the monument, this is where visitors receive an overview of monument resources and their significance through programs and services at the visitor center. Basic necessities and conveniences are also provided. Visitor activities include access, orientation, interpretation, and picnicking. Activities require little physical exertion. Visitors would likely encounter others frequently.
<b>FACILITIES AND OTHER ACTIVITIES On National Park Service Land</b>	No new National Park Service facilities or developments are allowed.  Overhead power lines and other visual intrusions are removed to the greatest extent possible.	Appropriate facilities include pedestrian and bike trails, interpretive wayside exhibits, self-guiding trail markers, and benches. Trails may be paved and may be connected to regional trail systems.  Appropriate facilities include the existing Ruins Road, but no additional roads or major changes to the existing road occur.  Overhead power lines and other visual intrusions are removed to the greatest extent possible.	Appropriate facilities include pedestrian trails, kiosks, wayside exhibits, self-guiding trail markers, and benches. Trails may be paved, up to five feet wide.  Overhead power lines and other visual intrusions are removed to the greatest extent possible.	Appropriate facilities include a visitor center, picnic area, administrative offices, maintenance facilities, roads, and utility areas and corridors. Also appropriate are kiosks, wayside exhibits, trails, self-guiding trail markers, and benches. Existing buildings are adaptively reused before any new development occurs. If there is any new development, it is confined to previously disturbed areas. All modifications and new development are compatible with the historic district and Prehistoric Designed Landscape, and

	RESOURCE PRESERVATION EMPHASIS ZONE	EXTENDED LEARNING ZONE	ESSENTIAL LEARNING ZONE	DEVELOPMENT ZONE
<b>FACILITIES AND OTHER ACTIVITIES On National Park Service Land (continued)</b>				sensitive to the surrounding viewshed, as seen by visitors elsewhere in the monument.  Where possible, overhead power lines are removed.
<b>Facilities and activities on private land and other rights within the boundary</b>	Private mineral rights exist in this zone. Adverse impacts on resources and visitor experience, resulting from existing or potential oil and gas activity and associated facilities, such as access roads, gas pads, pipelines, and fencing, are mitigated to the greatest extent possible (recognizing private landowner and permitted rights). If and when the gas wells are abandoned, these facilities are removed and the land is restored.	Private mineral rights exist in this zone. Adverse impacts on resources and visitor experience, resulting from existing or potential oil and gas activity and associated facilities, such as access roads, gas pads, pipelines, and fencing, are mitigated to the greatest extent possible (recognizing private landowner and permitted rights). If and when the gas wells are abandoned, these facilities are removed and the land is restored.  The Farmers Ditch continues to transport water across the monument via a right- of-way.	Private mineral rights exist in this zone. Adverse impacts on resources and visitor experience, resulting from existing or potential oil and gas activity and associated facilities, such as access roads, gas pads, pipelines, and fencing, are mitigated to the greatest extent possible (recognizing private landowner and permitted rights). If and when the gas wells are abandoned, these facilities are removed and the land is restored.  The Farmers Ditch continues to transport water across the monument via a right- of-way.	A gas well access road is located within this zone. If the related gas well is abandoned, the road is removed, and the land is restored.

## CARRYING CAPACITY

General management plans are required to address visitor carrying capacity for national park units. The National Park Service defines visitor carrying capacity as “the type and level of visitor use that can be accommodated while sustaining desired resource conditions and visitor experiences in the park.” Carrying capacity does not necessarily involve identifying a “magic number” for visitor use, nor does it necessarily imply closures or use limits.

The carrying capacity process for national parks typically involves the following steps (more detail on these steps is provided in Appendix C):

- Identify desired conditions (goals) for resources and visitors.
- Identify indicators (things to monitor to determine whether desired conditions are being met).
- Identify standards (limits of acceptable change) for the indicators.
- Monitor indicators.
- Take management action, as necessary, to ensure that standards are met.
- Regularly evaluate and make adjustments based on new information and lessons learned.

This GMP addresses each of these steps in the carrying capacity process. Desired resource and visitor experience conditions for each management zone were outlined previously in Table 3. In Table 4, potential carrying capacity concerns, indicators, and possible management actions are identified by management zone. If concerns, such as theft of archeological resources or trampling of native vegetation, were observed in a management zone, it could indicate that desired resource conditions are not being maintained and that management actions need to be taken to protect resources. Indicators are identified so that park managers can collect baseline data that will assist with setting preliminary standards, as well as measure changes in resource conditions and visitor experience. Possible management actions that might be used to address deteriorating trends or unacceptable conditions for each resource concern are also listed in Table 4.

With limited National Park Service personnel and budgets, park managers must focus carrying capacity efforts on areas where there are definite concerns or clear evidence of problems. This means that monitoring should concentrate on areas where: conditions violate standards (or threaten to), conditions are changing rapidly, specific and important values are threatened by visitation, or effects of management actions or visitation are unknown. At Aztec Ruins, efforts to monitor conditions would be focused at the West Ruin and extended under alternatives where more access is proposed to the East Ruin and North Ruin.



**Table 4: Carrying Capacity Indicators and Management Actions  
by Management Zone**

	RESOURCE PRESERVATION EMPHASIS ZONE	EXTENDED LEARNING ZONE	ESSENTIAL LEARNING ZONE	DEVELOPMENT ZONE
<b>CARRYING CAPACITY Concerns</b>	Theft or vandalism of archeological resources.	Theft or vandalism of archeological resources.  Trampling of native vegetation.	Theft or vandalism of archeological resources.  Trampling of native vegetation.  Visitor crowding.	Vegetation trampling (future concern, but no capacity problems have been observed at current visitation levels and patterns).  Visitor crowding.
<b>Possible Indicators</b>	Social trails, surface artifact density loss, illegal excavations, incidents of vandalism, and structure degradation, as monitored by condition assessment.	Social trails, surface artifact density loss, illegal excavations, incidents of vandalism, and structure degradation, as monitored by condition assessment.	Social trails, surface artifact density loss, illegal excavations incidents of vandalism, and structure degradation, as monitored by condition assessment.  Widening of existing trails.  Visitor satisfaction surveys and staff observations of crowding.	Bare ground.  Staff observations of overflow parking.
<b>Possible Management Actions</b>	Revise visitor education strategies, increase surveillance, or limit access.	Revise visitor education strategies, increase ranger presence and guided tours.  Reclaim social trails, harden trail edges, and construct barriers.	Revise visitor education strategies, increase ranger presence and guided tours.  Reclaim social trails, harden trail edges, construct barriers, and periodically close new trail.  Change scheduling of activities, encourage bus tours at different time slots.	Improve pedestrian circulation routes.  Change scheduling of activities, encourage bus tours at different time slots.  Provide for overflow parking.

## ACTIONS COMMON TO ALL ALTERNATIVES

Proposed actions listed here would be implemented under all three of the alternatives described after this section.

### ENVIRONMENTAL STEWARDSHIP AND SUSTAINABILITY

Sustainability can be described as doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices consider local and global consequences to minimize the short- and long-term environmental impacts of human actions and developments through resource conservation, recycling, waste minimization, and the use of energy-efficient and ecologically responsible materials and techniques.

At Aztec Ruins National Monument, the concept of environmental stewardship would be demonstrated through all aspects of planning, design, construction, resource management, visitor use, programs, and operations. All decisions regarding monument operations, facilities management, and development in the monument — from the initial concept through design and construction — would reflect principles of resource conservation. Thus, all monument developments and monument operations would be sustainable to the maximum degree possible and practical. New developments and existing facilities would be located, built, and modified according to the NPS Guiding Principles of Sustainable Design (1993).

In adhering to these concepts and principles, the following would be accomplished by monument staff:

- Continue to work with appropriate experts to make monument facilities and programs sustainable.
- Support and encourage suppliers, permittees, and contractors to follow sustainable practices.
- Address sustainable practices within and outside the national monument in interpretive programs.
- Promote the reduction, reuse, and recycling of materials; support the rehabilitation (recycling) of existing buildings and facilities over new construction; require new development or modifications of existing facilities to be built using National Park Service sustainability guidelines.

### RESOURCE MANAGEMENT

In conjunction with the resource management actions listed in each alternative, important attributes of the cultural soundscape within the monument and the night sky above the monument would be managed in accordance with NPS *Management Policies 2006*. More specifically, the National Park Service would assess and strive to minimize soundscape impacts from proposed plans of operations for oil and gas development within the monument. Similarly, the National Park Service would ensure that all existing lighting and any new lighting proposals within the monument would reduce light pollution and energy consumption. They would also

work with adjacent neighbors, including oil and gas operators, to facilitate their understanding of and interest in preserving the monument's cultural soundscape and night sky.

## COMMERCIAL SERVICES

Commercial visitor services in National Park Service areas like Aztec Ruins can include uses and activities, such as food services, transportation, lodging, interpretive guiding, equipment rentals, educational classes, special events, and other similar services, that are authorized through concession contracts, commercial use authorizations (formerly Incidental Business Permits), leases, and special use permits. These potential services are managed in accordance with National Park Service policies and to meet the following criteria for “necessary and appropriate.”

### *Necessary (meets one or more)*

- Enhances visitor understanding and appreciation of the monument's mission and values.
- Facilitates or complements the fundamental experiences of monument visitors.
- Assists the monument in managing visitor use and educating visitors via appropriate, safe, and minimum-impact techniques.
- Is an essential visitor service or facility not available within a reasonable distance from the monument.

### *Appropriate (meets all)*

- Services are consistent with the purposes and values for which the monument was established as well as applicable laws, regulations, and policies.
- Services do not compromise public health, safety, or well-being.
- Services do not significantly impact important monument resources and values.
- Services do not unduly conflict with other authorized monument uses and activities or services outside the boundary.

Because Aztec Ruins National Monument is surrounded by the City of Aztec, New Mexico, multiple services are provided by local businesses that are easily accessible to visitors. Services such as lodging, food, and transportation (rental cars, airport, and bus service) are located adjacent to or within minutes of the monument. The national monument should not duplicate and compete with these available services.

In compliance with the listed criteria, no major commercial services are currently provided or are envisioned in the near future within Aztec Ruins National Monument, because such services are provided outside the monument's boundaries, and therefore are not necessary to be provided within the boundaries. However, should availability of some services change, new commercial services within the monument could be considered if they satisfied the criteria.

Under a commercial use authorization, some commercial services could be offered at the monument that would be considered appropriate, but not necessary. For example, this could include a beneficial service such as an educational class that meets all of the appropriate use criteria. Special events and leases that are appropriate may also occur in the national monument if they meet the previously listed criteria.

## FARMERS DITCH AND IRRIGATION SYSTEM

The Farmers Ditch would continue to be used as a conduit for water under an implied right-of-way, wherein no actions within the monument boundary would be allowed to contribute to water pollution. Groundwater and surface runoff from the Farmers Ditch would be controlled to the greatest extent possible, thereby protecting and preserving the core area of Aztec Ruins from further deterioration. Other features associated with the overall irrigation system within the monument include some unused lateral drainage ditches and an unused drainage pond. Their eligibility for listing on the National Register of Historic Places will be evaluated in conjunction with the comprehensive cultural resource inventory. Further guidance will be provided in the vegetation and cultural landscapes management plan that is to be developed.

## LAND PROTECTION

### PRIVATELY OWNED LAND WITHIN THE MONUMENT

On October 28, 1988, Public Law 100-559, 102 Stat. 2800 revised the boundary for Aztec Ruins National Monument. It added just over 290 acres to the boundary, enlarging the monument to approximately 318 acres. A total of about 257 acres within the boundary are federally owned, of which about 149 acres are encumbered with third-party mineral rights (see discussion of Oil and Gas Rights under “Special Mandates and Administrative Commitments” in Chapter 1). About 60 acres of nonfederal land remain (including private ownership and city or county rights-of-way) and do not contain federally owned minerals. A *Land Protection Plan* approved in 1993 remains valid in recommending that the National Park Service should seek to acquire most remaining nonfederal lands within the boundary through fee simple methods or obtaining easements with willing landowners. The *Land Protection Plan* also remains valid in not recommending acquisition of subsurface interests, as the cost of acquiring these interests while production is under way is expected to be substantially in excess of benefits (unless they can be acquired by donation or at a cost commensurate with benefits of protection).

The National Park Service will continue to manage the resources on federally owned land within the monument, in full recognition of the rights of private property owners within the monument boundary. However, it should also be recognized that resources, such as invasive exotic vegetation, know no political or ownership boundary. Removal of such species wherever they occur within the monument boundary may be desirable, especially if they threaten archeological resources. Therefore, the National Park Service will communicate with private landowners within the monument to try and institute cooperative efforts that will enhance overall resource preservation and protection.

### NONFEDERAL SUBSURFACE RIGHTS

As noted in “Special Mandates and Administrative Commitments” in Chapter 1, owners of nonfederal subsurface rights (primarily oil and gas) within Aztec Ruins National Monument may exercise those rights subject to National Park Service regulations in Title 36 *Code of Federal Regulations* (CFR), Part 9, Subpart B (9B Regulations). Pursuant to the 9B regulations, two of the three wells, the Fee 9Y and Fee 4A, are operated under an approved plan of operations. Under the plan, operators must conduct operations using technologically feasible methods that are least damaging to monument resources, while ensuring protection of public health and safety. The third well, Bobbie Herrera No. 1, qualifies for an exemption to the plan of operations and



bonding requirements, because the current operator was conducting operations at the time the federal government acquired the surface estate. The superintendent may suspend operations should they ever pose an immediate threat of significant injury to federal property. Eventually, well plugging and surface reclamation will be conducted under a National Park Service-approved plan of operations.

Activities outside the scope of 36 CFR 9B Regulations, such as the gas gathering system operated by an entity not exercising a private mineral right, may be addressed under a special use permit.

## **BOUNDARY ADJUSTMENTS**

The National Park Service would continue to examine the current authorized boundary and recommend changes as necessary and appropriate. Currently, no major boundary adjustments are recommended. Minor boundary adjustments could be sought to resolve minor issues with neighboring landowners and improve resource protection. Minor boundary revisions could be made without congressional legislation as long as certain criteria are met. One criterion is that private landowners involved in the boundary adjustment must provide written consent. Secondly, the sum of total acreage added to the monument must not exceed 5% of its total acreage and must be fewer than 200 acres. Deletions of acreage from within the boundary would require legislation.

## ALTERNATIVE 1: NO ACTION (CONTINUATION OF EXISTING CONDITIONS)

### GENERAL CONCEPT

The general concept of the no-action alternative is to identify current management practices as a baseline of comparison for evaluating the changes and impacts of the action alternatives (see Alternative 1 map). The zoning scheme from the 1989 GMP would remain in place. Management would continue to preserve and protect natural and cultural resources with an emphasis on prehistoric ruins and artifacts of the West Ruin area. Features of existing cultural landscapes would be retained, even where they overlap and conflict. Most visitors would continue to experience the visitor center and West Ruin interpretive trail. There would be no new construction of facilities, but existing facilities would be reconfigured to improve monument operations. National Park Service managers would continue to focus their efforts within the monument boundary.

### RESOURCE MANAGEMENT

Aztec Ruins National Monument would holistically approach the treatment of resources found within the monument. This consists of cultural resources, which include archeological resources, historic structures, cultural landscapes, the museum collection, and ethnographic resources, and natural resources, which include vegetation, wildlife, and special status species. In general, resources would be managed in accordance with the monument's *Resources Management Plan*, which addresses both cultural and natural resources and is periodically updated. In Alternative 1, management of natural and cultural resources would stay primarily focused on resources within monument boundaries. Key resources are described below.

The terms *West Ruin*, *East Ruin*, and *North Ruin*, when used in the "Archeological Resources" section of each alternative description, refer not only to the major ruin that is named, but also to the complex of archeological features and sites associated with that major ruin. The associated features and sites in each ruin complex are described in Chapter 3 under "Archeological Resources." Other references to these ruins, such as in "Visitor Experience and Educational Opportunities," are generally about the major ruin and not the associated smaller sites.

### ARCHEOLOGICAL RESOURCES

Archeological resources include the remnants of ancient structures, known as "ruins," and associated artifacts and features, both excavated and unexcavated. Resources would be protected against human and natural agents of destruction and deterioration. Nonstructural sites of both prehistoric and historic age also are present along with isolated artifact scatters. Monument-wide cultural resource inventories and condition assessments would continue to be updated. Archeological preservation activities would continue to focus on West Ruin, with programs such as ruins stabilization, backfilling, and fill level adjustment. Research would also continue to be primarily focused at the West Ruin. Research would remain important to the mission of the monument, and research activities would emphasize nondestructive techniques.

# Aztec Ruins National Monument

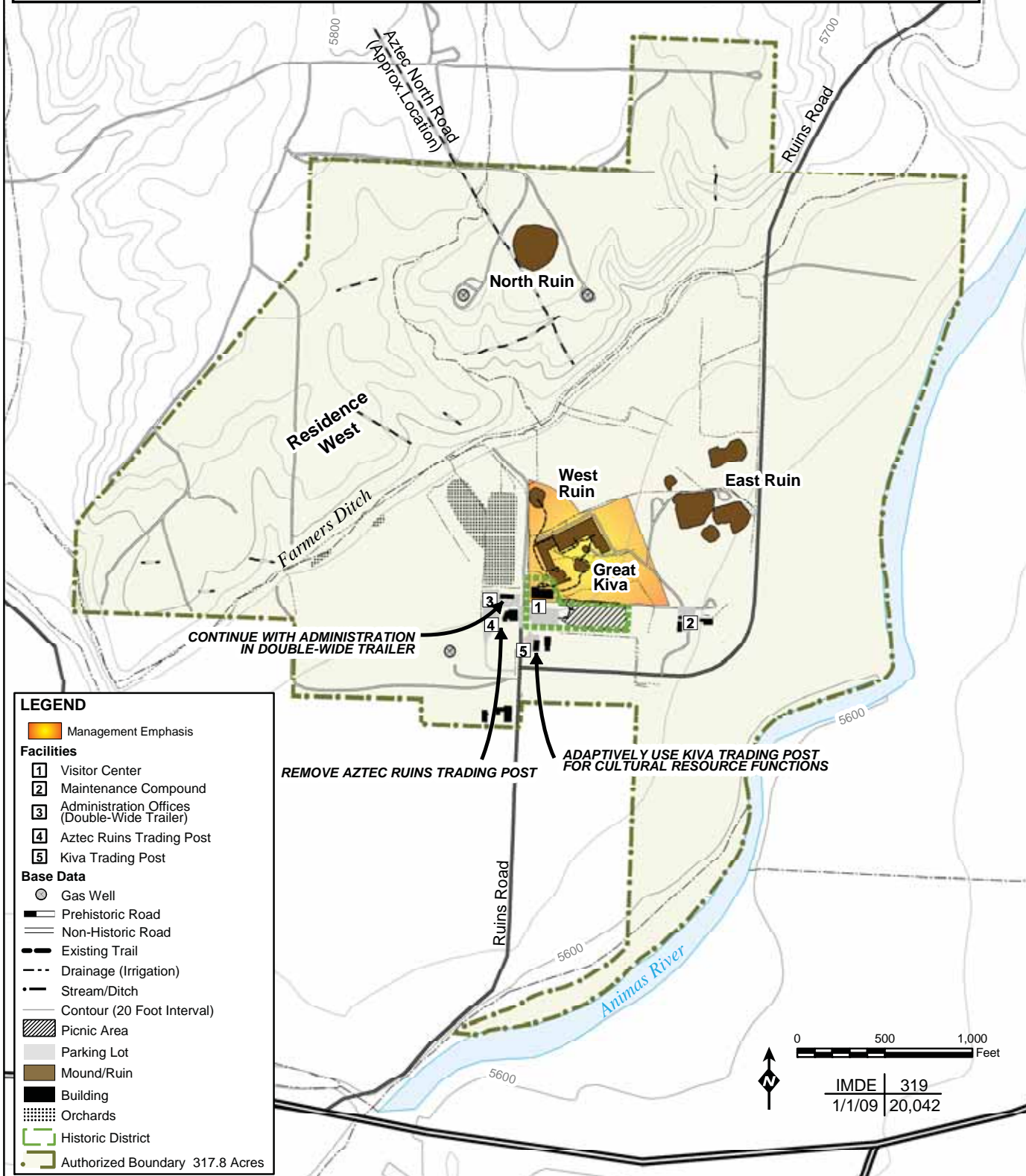
National Park Service  
U.S. Department of the Interior



## Alternative 1

### ALTERNATIVE 1: No Action (Continuation of Existing Conditions)

**OVERALL MANAGEMENT EMPHASIS:** The emphasis on resource management and visitor experience is focused on the West Ruin area. Somewhat limited functions continue within the monument, such as inadequate administrative facilities and visitor use that is restricted to West Ruin.



## **Inventory and Monitoring**

The inventory and geographic information system database that has been developed to manage cultural resource data would be maintained so that current information on archeological resources is available to assist with planning and implementation of projects and operations discussed in this GMP. Archeological site condition assessments would be performed at least every five years and used to prioritize site preservation activities. Monitoring would be focused primarily on the aboveground architecture of West Ruin and East Ruin.

Archeological resources would continue to be monitored for impacts from groundwater and irrigation.

## **Ruins Stabilization**

Aztec Ruins has a continuous program of ruins maintenance, repair, stabilization, and monitoring. The major goal is to maintain the ancient structures in good condition. Most ruins preservation activities consist of masonry work that repairs and sometimes provides in-kind replacement of ancient stonework and earthen mortar. A cyclic maintenance program seeks to apply preventive treatments that remedy ruins deterioration before serious damage ensues or the ruins become unstable. Particularly during harsh weather, some destabilization occurs that requires more aggressive treatments. New manufactured roofs that protect ancient roofing decrease deterioration in many exceptionally well-preserved structures, but the protective roofs also require frequent repairs, maintenance, and occasionally replacement.

Within the hundreds of rooms exposed in West Ruin and East Ruin, emphasis would continue to be on high-priority cyclic maintenance projects to repair deterioration from weather, groundwater, visitation, and other forces. These tasks would be accomplished in a manner that attempts to minimize intrusive treatment, replicates the original style as much as possible, and provides results that are aesthetically pleasing to visitors.

## **Backfilling**

The National Park Service identified backfilling (site reburial) as a major stabilization technique at Aztec Ruins in the 1989 GMP. Several small-scale backfilling projects were initiated prior to development of a master *Backfilling Plan for West Ruin* (Trott 1997) — a plan that has guided site reburial since that time. Backfilling helps to support standing walls, control moisture deterioration, and to equalize differential fill levels that cause pressure on walls where unexcavated rooms adjoin excavated areas or rooms that still have intact ancient roofs, which has prevented natural filling over the centuries. The West Ruin backfilling program is ongoing and has evolved as the master plan was implemented in the field and its limitations were recognized.

There would continue to be refinements in implementing backfill techniques at the West Ruin, including adjusting fill levels, limited fill reduction in critical areas, regrading ground surface, and installing drainage and soil retention structures. This would be done under a final treatment plan in consultation with the New Mexico State Historic Preservation Office and American Indian tribes.

## **Research**

Aztec Ruins was set aside “for the enlightenment and culture of the nation” and because of its “unusual prehistoric and scientific value.” Ongoing research is central to the monument’s mission. The monument would continue to conduct research and encourage research by other institutions and scholars. Research would be conducted with the minimum disturbance possible to cultural resources and their natural setting. Both the National Park Service and



independent research would emphasize the use of the least destructive techniques feasible for any particular situation or research agenda. Research techniques would shift away from high-impact techniques, like excavation to high-tech approaches such as geophysical prospecting. The interpretive program would strive to inform the public about research methods and findings. Archeological materials removed from in situ archeological contexts for whatever reason would be recovered and preserved in the monument's museum collection.

Archeological data recovery, or excavation, may be permitted if justified by research or interpretive needs or to mitigate potential loss of resources owing to uncontrollable degradation. Judicious use of small-scale excavations or subsurface archeological testing may be employed to answer archeological research questions, verify hypothetical information, mitigate unavoidable impacts, or preserve cultural resources. Tribal input would be gathered through discussions with associated American Indian groups for any proposed project that includes excavation. Every effort would be made to minimize the chances of encountering human remains. Pertinent legislation and approved procedures would be followed in such circumstances. Consultation would also be conducted with the State Historic Preservation Officer.

### **CULTURAL LANDSCAPES**

Cultural landscapes are geographic areas, including both cultural and natural resources, that are associated with a historic or prehistoric event, activity, or person, or exhibiting other cultural or aesthetic values. Elements that contribute to cultural landscapes include vegetation; structures such as buildings, walls and fences, and habitat and ceremonial ruins; roads and circulation systems; and water features. Natural resources are also integral components of cultural landscapes (see "Affected Environment" for further description).

Under this alternative, the management of natural and cultural resources would be integrated through recognition of the following three cultural landscapes present within Aztec Ruins National Monument.

- Prehistoric Designed Landscape, which relates primarily to the ancient Pueblo community and consists of just over 315 acres. This landscape encompasses all lands within the monument except the Historic Designed Landscape.
- Historic Designed Landscape, which comprises the Historic District (primarily the visitor center complex) and consists of 2.35 acres.
- Historic Vernacular Landscape, which relates primarily to the agricultural lands southeast of the Farmers Ditch, excluding the Historic Designed Landscape, and consists of approximately 170 acres.

Under Alternative 1, existing features of all three landscapes would generally be retained, even where they overlap. The Prehistoric Designed Landscape, a landscape that is eligible for listing on the National Register of Historic Places (NRHP), would continue to overlap with the Historic Vernacular Landscape. Pear and apple orchards, other fruit trees and ornamentals, and agricultural structures of the Historic Vernacular Landscape would be retained. Irrigation of the pear and apple orchards would continue, and groundwater would continue to be monitored to identify possible impacts to archeological resources. If orchard trees die, they would not be replaced. If retention of specific elements of the Historic Vernacular Landscape could threaten important archeological resources, they may be considered for removal. For example, the

drainage pond north of the East Ruin (part of the Historic Vernacular Landscape) would be retained, although the surface pipe would be removed to protect archeological resources.

The Historic Designed Landscape, composed of the Historic District (visitor center complex), would continue to be managed to protect features that contribute to its eligibility for listing on the NRHP. Existing trees, such as cottonwood and Russian olive, in the vicinity of the monument ruins, developed and parking areas, picnic area, and maintenance area would remain. As they become hazardous, especially the cottonwoods, they would be pruned or removed. However, there is no intent to replant any of the trees in kind outside of the Historic District. Trees within the Historic District that contribute to the significance of the Historic District would be replaced in kind, if possible. Whether or not volunteer trees would be allowed to grow depends on how they relate to or impact the integrity of the Historic District. The impact of the removal and replacement of exotic trees within the Historic District would be evaluated. Mowing of grass would continue adjacent to roads, within the picnic area, and near residential areas for the enjoyment of visitors, staff, and residents.

## **MUSEUM COLLECTIONS**

All collections at Aztec Ruins National Monument would be managed according to the monument's *Collections Management Plan* (1980). As directed by the *Park Museum Collection Storage Plan* (NPS 2007), the monument's archives and archeological collections would continue to be stored at the Hibben Center, a permanent repository at the University of New Mexico. The monument's history collection would be moved from the national monument to the Western Archeological and Conservation Center in Tucson. The natural history collection would be moved to the Northern Arizona Facility in Flagstaff. Object and artifact collections related to the occupation of the site would continue to be evaluated for potential additions to public display collections within the monument.

## **VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES**

The primary experience for visitors to Aztec Ruins National Monument involves making connections to the past through exploration and seeing the archeological ruins on the site. Under this alternative, visitors would continue to learn about the stories associated with Aztec Ruins at the visitor center and via a self-guided walk through the West Ruin. Picnicking would continue to be available. The monument would continue to be operated as a day-use area and would be gated and closed at night. However, specially scheduled and guided activities confined to specific areas would occur at night.

The primary access would continue to be from the city of Aztec, via Ruins Road, to the visitor center. Secondary access would also continue from the north via Ruins Road. The National Park Service would work with the City of Aztec, San Juan County, and the New Mexico Department of Highways to improve the signage along the roadways leading to Aztec Ruins, to make it easier for visitors to find the monument.

The visitor center would continue to be the first stop for all visitors, and access to other parts of the site would require passing through the visitor center. Visitors would learn about the stories associated with Aztec Ruins at the visitor center through museum exhibits, a multimedia presentation, and educational publications on sale at the front desk. From the visitor center, the visitor would continue to have direct access to the West Ruin via a paved, self-guided loop trail

extending approximately 0.40 miles that includes several intact rooms and the reconstructed Great Kiva. This would continue to be the only area open to the public on a regular basis. Views from the trail remain important for understanding the Prehistoric Designed Landscape and the monument's relationship to other Chacoan sites beyond monument boundaries. The National Park Service would work with the local community through partnerships and other means to minimize adverse impacts on the visitor experience related to the viewshed outside the monument boundary.

Through interpretive and educational programs, the National Park Service provides opportunities for visitors to understand, appreciate, and enjoy the significance of the monument and its resources, with the hope that this will encourage the development of a personal stewardship ethic and broaden public support for preserving monument resources. The monument would maintain a comprehensive interpretive plan to guide the overall interpretive program, based on the primary interpretive themes identified in Chapter 1 of this document. Personal services, publications, exhibits, and audiovisual presentations are all tools to enhance the interpretive and educational programs provided by the monument.

As time and funding permit, the staff at Aztec Ruins would continue to be involved in interpretive programs outside the monument, such as presentations to students at local libraries. They would also seek creative ways to involve partners in providing other interpretive and educational services when goals and objectives are compatible.

The monument would continue to strive to make programs and facilities comply with the Americans with Disabilities Act and other requirements. Where terrain or other constraints prevent physical access to major features, efforts would be made to provide alternative experiences through exhibits, photographs, and other means.

## **FACILITIES AND OPERATIONS**

Under this alternative, most of the existing facilities (structures, roads, parking areas, and picnic area) would generally be maintained. The Kiva Trading Post would be rehabilitated and one structure would be removed. There are no new buildings proposed.

### **VISITOR CENTER**

The building would continue to be used as a visitor center and for some staff offices. The historic character of the structure, which is eligible for inclusion on the NRHP, would be maintained.

### **ADMINISTRATION TRAILER**

The modular trailer just west of the visitor center would continue to be used for administrative headquarters, where the superintendent, employees in the administration division and the ranger/interpretive division, and other support staff work in relatively cramped conditions.

### **MAINTENANCE COMPLEX**

The existing maintenance complex would continue to be used by maintenance and cultural resource personnel for offices and as a garage, storage, and staging area for maintenance and stabilization functions. Staff offices would also continue to be located in a former employee housing structure in the maintenance complex.

### **AZTEC RUINS TRADING POST**

The Aztec Ruins Trading Post would be removed.

### **KIVA TRADING POST**

The Kiva Trading Post would be rehabilitated for cultural resource offices, work space, and a wet lab (laboratory area where artifacts are washed, dried, and prepared for curation).

## **OUTREACH AND PARTNERSHIPS**

Aztec Ruins National Monument would continue to work cooperatively with other federal, state, and local agencies; American Indian authorities; adjacent landowners; not-for-profit groups, such as friends or cooperating associations; and others to identify and achieve broad goals in resource preservation and environmental sustainability. Monument staff would also encourage educational opportunities relating to the ancient Pueblo culture, both inside and outside of the monument boundary, to the extent that staffing and funding allow. Through these relationships, the National Park Service would continue to provide and receive valuable assistance in the form of educational programs, living history demonstrations, search and rescue operations, fund-raising campaigns, habitat restoration, ecosystem management, and a host of other activities.

Some activities occurring outside the monument boundaries could continue to have a profound effect on the ability of Aztec Ruins to protect the natural and cultural resources within the monument. Formal and informal communication with others would help the National Park Service better achieve monument management objectives and protection of resources. The National Park Service would continue to embrace partnership opportunities that would help accomplish the National Park Service mission, provided personnel and funding requirements do not make it impractical to participate and that the partnership activity would not (1) violate legal or ethical standards, (2) otherwise reflect adversely on the National Park Service mission and image, or (3) imply an unwillingness by the National Park Service to perform an inherently governmental function.

### **COMMUNICATION WITH AMERICAN INDIAN TRIBES**

The National Park Service would continue to foster relationships and cultural sensitivity with the tribes and nations associated with Aztec Ruins National Monument.

Monument staff would continue to meet and communicate with tribal officials on a project-by-project and periodic basis to identify problems and issues of mutual concern and interest and work together to take actions to address these concerns. Tribal officials would continue to be kept informed of planning and other actions in Aztec Ruins National Monument that could affect the tribes. When appropriate, monument staff would provide technical assistance to the tribes, including sharing information and resources, to address problems and issues of mutual concern.

Aztec Ruins staff would also continue to recognize the past and present existence of Ancestral people in the region and their land use and occupation as an important part of the cultural environment to be researched, preserved, and interpreted. They would consult with the tribes traditionally associated with the monument to develop and accomplish the programs of Aztec Ruins National Monument in a way that respects the beliefs, traditions, and other cultural values of the tribes with ties to monument lands. The monument staff would also accommodate access



to traditionally used areas in ways consistent with monument purposes and American Indian values and that avoid adversely affecting the physical integrity of such sites and resources.

## STAFFING AND COSTS

Aztec Ruins National Monument and Chaco Culture National Historical Park have consolidated administrative and maintenance operations, staff, and resources since the 2001 fiscal year. In late 2007, the staffs of Aztec and Chaco met with facilitators from the Intermountain Region and other parks to take part in a core operations analysis to assist both parks with strategic and financial planning for the next five years. The creation of the Eastern Four Corners Group caused another organizational realignment in July 2007. This realignment “grouped” Aztec and Chaco with Yucca House under the group superintendent at Mesa Verde National Park. The superintendents of the Eastern Four Corners Group have been tasked with identifying and implementing opportunities for operational efficiencies through shared services across park boundaries.

All staffing proposals would be consistent with the position management plan identified in the core operations analysis and the efficiencies recognized in the creation of the Eastern Four Corners Group realignment. Any new positions may be filled by realignment of existing positions, shared services within the “Group” realignment, or as a result of the base funding increase request identified in the core operations analysis.

Under this no-action alternative, the monument staffing level would be 16 full-time equivalent employees. This is the number of person-years of staff required to maintain the assets of the monument, provide acceptable visitor services, protect resources, and generally support the monument’s operations. Four of these positions are shared with Chaco Culture National Historical Park. Operational needs under this alternative would continue to be met through several sources of funding that provide for employees to fulfill management’s responsibilities for resource protection and visitor use and understanding.

The cost figures provided here are for alternatives comparison purposes only — they are not to be used for budgeting purposes. Annual operating costs would be \$1.13 million, and one-time facility costs for the design, construction, rehabilitation, or adaptive reuse of facilities would be \$430,000. A comparison of costs by alternative and more specific information is provided in Appendix D.

## ALTERNATIVE 2

### GENERAL CONCEPT

The emphasis of this alternative would be to expand opportunities for more comprehensive visitor understanding and to expand the scope of resource stewardship throughout the monument (see Alternative 2 map). Distractions to visitor understanding of fundamental resources and values, such as the orchards, would be removed. Visitors would have opportunities to experience resources and stories beyond the West Ruin through additional trails and interpretive tools that would lead visitors to other areas of the monument, including the East Ruin and the North Ruin. Resource management activities, such as ruins stabilization, backfill, and research, would be expanded from the focus on the West Ruin to additional significant cultural resources within the boundary of the monument. Existing buildings would be remodeled and expanded to improve administrative functions. This proposed concept would be consistent with the desired resource conditions, visitor experiences, and facility development outlined in Table 3 and shown in the Management Zones map.

### RESOURCE MANAGEMENT

As in Alternative 1, Aztec Ruins National Monument would holistically approach the treatment of resources found within the monument. This consists of cultural resources, which include archeological resources, historic structures, cultural landscapes, the museum collection, and ethnographic resources; and natural resources, which include vegetation, wildlife, and special status species. In general, resources would be managed in accordance with the monument's *Resources Management Plan*, which addresses both cultural and natural resources and is periodically updated.

In Alternative 2, resource management would integrate natural and cultural resource management though greater emphasis on the differences among the three cultural landscapes that exist within the monument. Under this alternative, archeological research and preservation activities would be expanded beyond the West Ruin to other areas in the monument, and cultural landscapes would be managed according to a hierarchy of priorities. As in Alternative 1, resource management would remain focused within the boundary of the monument.

### ARCHEOLOGICAL RESOURCES

Inventory, site condition assessments, and monitoring would be conducted to provide the basis for work priorities as outlined in Alternative 1. However, additional preservation activities would occur related to ruins stabilization and backfilling. Detailed planning for expanding these preservation activities would be done in consultation with American Indian tribes and the New Mexico State Historic Preservation Office.

#### Inventory and Monitoring

Under Alternative 2, inventory and site condition assessments could lead to more active preservation of resources throughout the monument, such as the North Ruin.

# Aztec Ruins National Monument

## New Mexico

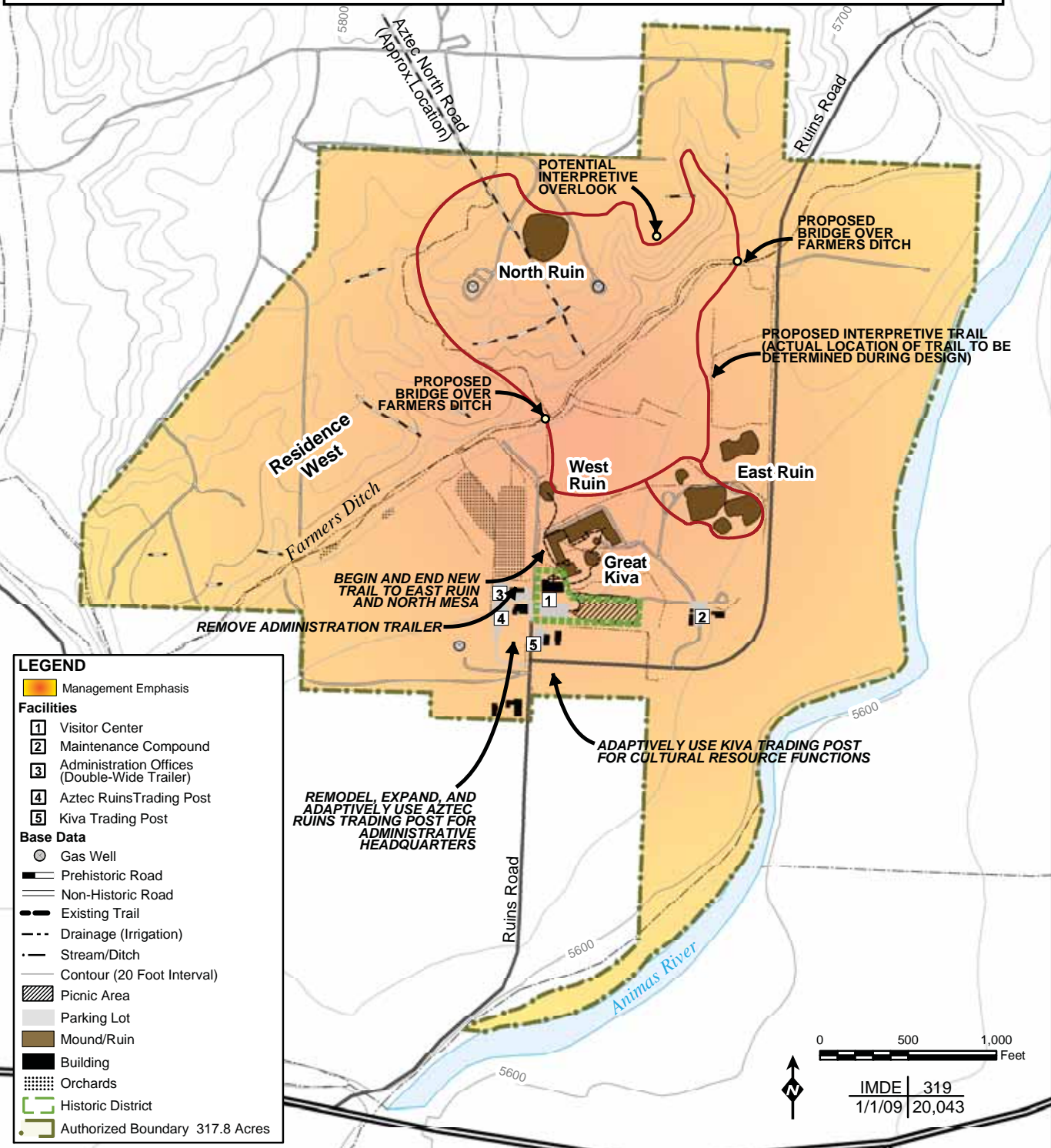
### Alternative 2

National Park Service  
U.S. Department of the Interior



#### ALTERNATIVE 2

**OVERALL MANAGEMENT EMPHASIS:** The emphasis on resource management and visitor experience extends beyond West Ruin to other areas of the monument, including East Ruin and Aztec North Mesa Archeological District. Enhanced functions occur within the monument, including expanded on-site visitor use and educational opportunities and new administrative facilities.



### **Ruins Stabilization**

Ruins stabilization would continue to be performed on the West Ruin, East Ruin, and throughout the rest of the monument as described in Alternative 1, but would address both medium- and high-priority cyclical maintenance needs to repair deterioration from weather, groundwater, visitation, and other forces. Stabilization activities would be both preventive and proactive. These tasks would be accomplished in a manner that attempts to minimize intrusive treatment, replicates the original style as much as possible, and provides results that are aesthetically pleasing to visitors.

### **Backfilling**

As described in Alternative 1, programs of backfill and fill level adjustment, including adjusting fill levels, limited fill reduction in critical areas, regrading ground surface, and installing drainage and soil retention structures, would continue at the West Ruin. However, in Alternative 2, preservation through backfill and fill level adjustment would also be considered for the East Ruin and North Ruin. This would be done through the development of a final treatment plan in consultation with the New Mexico State Historic Preservation Officer and American Indian tribes.

### **Research**

As in Alternative 1, the monument would continue to conduct research and encourage research by other institutions and scholars with the least intrusive techniques. Research techniques would shift away from high-impact techniques like excavation to high-tech approaches, such as geophysical prospecting. Research, which would be primarily focused at the West Ruin in Alternative 1, would be expanded in Alternative 2 to learn more about the entire monument, particularly the new lands added to the north. The interpretive program would strive to inform the public about research methods and findings.

As outlined in Alternative 1, archeological data recovery, or excavation, may be permitted if justified by research or interpretive needs or to mitigate potential loss of resources owing to uncontrollable degradation. Tribal input would be gathered through discussions with associated American Indian groups for any proposed project that includes excavation.

### **CULTURAL LANDSCAPES**

The management of natural and cultural resources would be integrated through recognition of cultural landscapes. Recognizing the differences in the three landscapes, a hierarchy of importance would be established to resolve conflicting goals where the historic landscapes overlap. To protect the two most important landscapes, which are eligible for the National Register of Historic Places, and to provide improved opportunities for visitor understanding of the most significant resources, the Prehistoric Designed Landscape and the Historic Designed Landscape would be retained and enhanced. Features of the least important Historic Vernacular Landscape that overlap with the Prehistoric Designed Landscape and conflict with or degrade the primary two landscapes would be considered for removal.

In keeping with the purpose of the monument and its fundamental resources and values, the Prehistoric Designed Landscape would be the highest priority for restoration and enhancement actions when competing for scarce dollars. The Historic Designed Landscape (visitor center complex) is surrounded by the Prehistoric Designed Landscape. It would continue to be managed to protect features that contribute to its eligibility on the National Register of Historic

Places, as well as to minimize impacts to the character-defining features of the surrounding Prehistoric Designed Landscape.

Orchards and other ornamentals of the Historic Vernacular Landscape are features that directly conflict with preservation of archeological resources and visitor understanding of the Prehistoric Designed Landscape, and would be removed. Orchards and ornamentals are a major distraction from developing visitor understanding of the primary interpretive themes and appreciation of the monument's fundamental resources and values. Groundwater infiltration from irrigating the orchards and ornamentals is adversely affecting archeological resources. Based on these treatment priorities for cultural landscapes, the pear and apple orchards just to the west of the West Ruin would be removed. Other orchards, fruit trees, and ornamentals, such as roses and lilacs, would also be removed. Other features of the Historic Vernacular Landscape, such as agricultural structures, would be evaluated on a case-by-case basis to determine whether they should remain or should be removed. Some vernacular features may be left in place, considered for removal only if there is a compelling management reason, such as a conflict with fundamental resources in the two primary cultural landscapes, adverse impact on the visitor experience, or safety concerns. Management decisions would also consider the environmental impacts of actions and fiscal priorities.

Throughout the Prehistoric Designed Landscape, native vegetation that is either contributing to or is compatible with what might have appeared in the ancient Pueblo scene would be restored and maintained. Vegetation within the Historic Designed Landscape would be managed for the function and integrity of the Historic District.

Additional details to implement this alternative would be developed in a separate vegetation and cultural landscapes management plan.

## **MUSEUM COLLECTIONS**

As in Alternative 1, all collections would be managed according to the monument's *Collections Management Plan* (1980). The monument's archives and archeological collections would continue to be stored at the Hibben Center. The monument's history collection would be moved from the national monument to the Western Archeological and Conservation Center. The natural history collection would be moved to the Northern Arizona Facility. Object and artifact collections related to the occupation of the site would continue to be evaluated for potential additions to public display collections within the monument.

## **VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES**

Opportunities for visitors to experience and learn about Aztec Ruins would be greatly expanded under this alternative. Experiences and opportunities available in Alternative 1, such as the visitor center, self-guided walks through the West Ruin, and picnicking, would continue. Primary visitor access would continue to be from Ruins Road, and the monument would continue to be primarily a day-use area. There would be minor modifications to the visitor center and a major upgrade to exhibits. As in Alternative 1, the monument staff would continue to be involved in interpretive programs outside of the monument as time and funding permit. The monument would continue to strive to improve universal access to programs and facilities. However, there are three key differences in Alternative 2:



- The removal of the orchards and ornamentals from the Prehistoric Designed Landscape would improve opportunities for visitors to understand ancient Puebloan culture.
- Expanded research would inform new exhibits and interpretive programs, offering visitors a broader understanding of the monument.
- A new one and one-half-mile interpretive loop trail would greatly expand visitor experience and understanding of the site. The trail would begin and end at West Ruin and loop to East Ruin and North Ruin. This would provide visitors with the opportunity to be immersed in and view a greater variety of the monument's resources, such as unexcavated ruins and cultural landscapes. This new trail would allow for broader learning opportunities for the visitor, including self-guided and ranger-led tours, and would be accessible for disabled visitors, if possible. The proposed location and layout for the trail, including a potential interpretive overlook, is shown on the Alternative 2 map. However, as noted on the map, the final trail layout and location would be determined during a more detailed design phase. Additional compliance would be required to analyze impacts associated with the final location.

## **FACILITIES AND OPERATIONS**

Existing facilities (structures, roads, parking areas, and picnic area) would generally be maintained. As described below, the Kiva Trading Post and the Aztec Ruins Trading Post would be remodeled and rehabilitated to improve monument operations and the administration trailer would be removed. There are no new structures proposed. As in Alternative 1, the monument would strive to demonstrate environmental stewardship and sustainability through all aspects of planning, design, construction, resource management, and operations.

### **VISITOR CENTER**

As in Alternative 1, the building would continue to be used as a visitor center and for some staff offices. The historic character of the structure (eligible for the National Register of Historic Places) would be maintained. New exhibits would be installed.

### **ADMINISTRATION TRAILER**

The existing administration trailer would be removed.

### **MAINTENANCE COMPLEX**

As in Alternative 1, the existing maintenance complex would continue to be used by maintenance and cultural resource personnel for offices and storage and as a garage and staging area for maintenance and stabilization function.



*Aztec Ruins Trading Post*

### **AZTEC RUINS TRADING POST**

The Aztec Ruins Trading Post would be rehabilitated to serve as the new administrative headquarters for the monument. This would include office space for the superintendent and for up to 10 employees from the administration division, the ranger/interpretive division, and other support staff. A conference room would also be provided.

The original building was nearly half the size it is now and dates back to 1930, when it was first used as a trading post. A number of additions have been made to the structure over the years. A recent structural analysis suggests that the original building is salvageable, but the additions should be removed. Although determined to be not eligible for the National Register of Historic Places, the architecture of the original core structure of this building would be restored.

Existing add-on construction would be replaced by new construction, and the building footprint would be slightly expanded to provide the needed space. The existing space in the Aztec Ruins Trading Post measures 2,718 square feet, of which 1,278 square feet is the original 1930s construction and 1,440 square feet is add-on construction. The total finished size of the rehabilitated building would be 3,800 square feet. New construction would be in keeping with the original architecture of the building and would occur on previously disturbed ground. The existing roof would also be flattened, resulting in a lower profile.

### **KIVA TRADING POST**

As in Alternative 1, the Kiva Trading Post would be rehabilitated for cultural resource offices, work space, and a wet lab (laboratory area where artifacts are washed, dried, and prepared for curation).

## **OUTREACH AND PARTNERSHIPS**

As in Alternative 1, Aztec Ruins National Monument would continue to work cooperatively with other federal, state, and local agencies; American Indian authorities; adjacent landowners; not-for-profit groups, such as friends or cooperating associations; and others to identify and achieve broad goals in resource preservation and environmental sustainability. Monument staff would

also encourage educational opportunities relating to the ancient Pueblo culture, both inside and outside of the monument boundary, to the extent that staffing and funding allow. Through these relationships, the monument would continue to provide and receive valuable assistance in the form of educational programs, living history demonstrations, emergency response, fund-raising campaigns, habitat restoration, ecosystem management, and a host of other activities.

### **COMMUNICATION WITH AMERICAN INDIAN TRIBES**

As in Alternative 1, the National Park Service would continue to foster relationships and cultural sensitivity with the tribes and nations associated with Aztec Ruins National Monument.

### **STAFFING AND COSTS**

Under Alternative 2, the monument staffing level would be 18 full-time equivalent employees. Four of these positions would continue to be shared with Chaco Culture National Historical Park. As described in Alternative 1, all staffing proposals would be consistent with the position management plan identified in the core operations analysis and the efficiencies recognized in the creation of the Eastern Four Corners Group realignment. Any new positions may be filled by realignment of existing positions, shared services within the “Group” realignment, or as a result of the base funding increase request identified in the core operations analysis.

Annual operating costs would be \$1.25 million, and one-time facility costs for the design, construction, rehabilitation, or adaptive reuse of facilities would be \$2.4 million. Non-facility costs for one-time removal of the orchards would be \$20,000. A comparison of costs by alternative and more specific information is provided in Appendix D.

The cost figures provided here are for alternatives comparison purpose only — they are not to be used for budgeting purposes. More specific costs would be determined in subsequent, more detailed planning and design exercises, in consideration of the design of facilities, identification of detailed resource protection needs, and changing visitor expectations. The separate vegetation and cultural landscapes management plan, which will follow this GMP, would provide some of these more detailed costs.

Actual costs to the National Park Service would vary, depending on if and when the actions are implemented and on contributions by partners and volunteers. The implementation of the approved plan, no matter which alternative is selected, would depend on future National Park Service funding levels and service-wide priorities and on partnership funds, time, and effort. The approval of a GMP does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the plan could be many years into the future.

# Aztec Ruins National Monument

## New Mexico

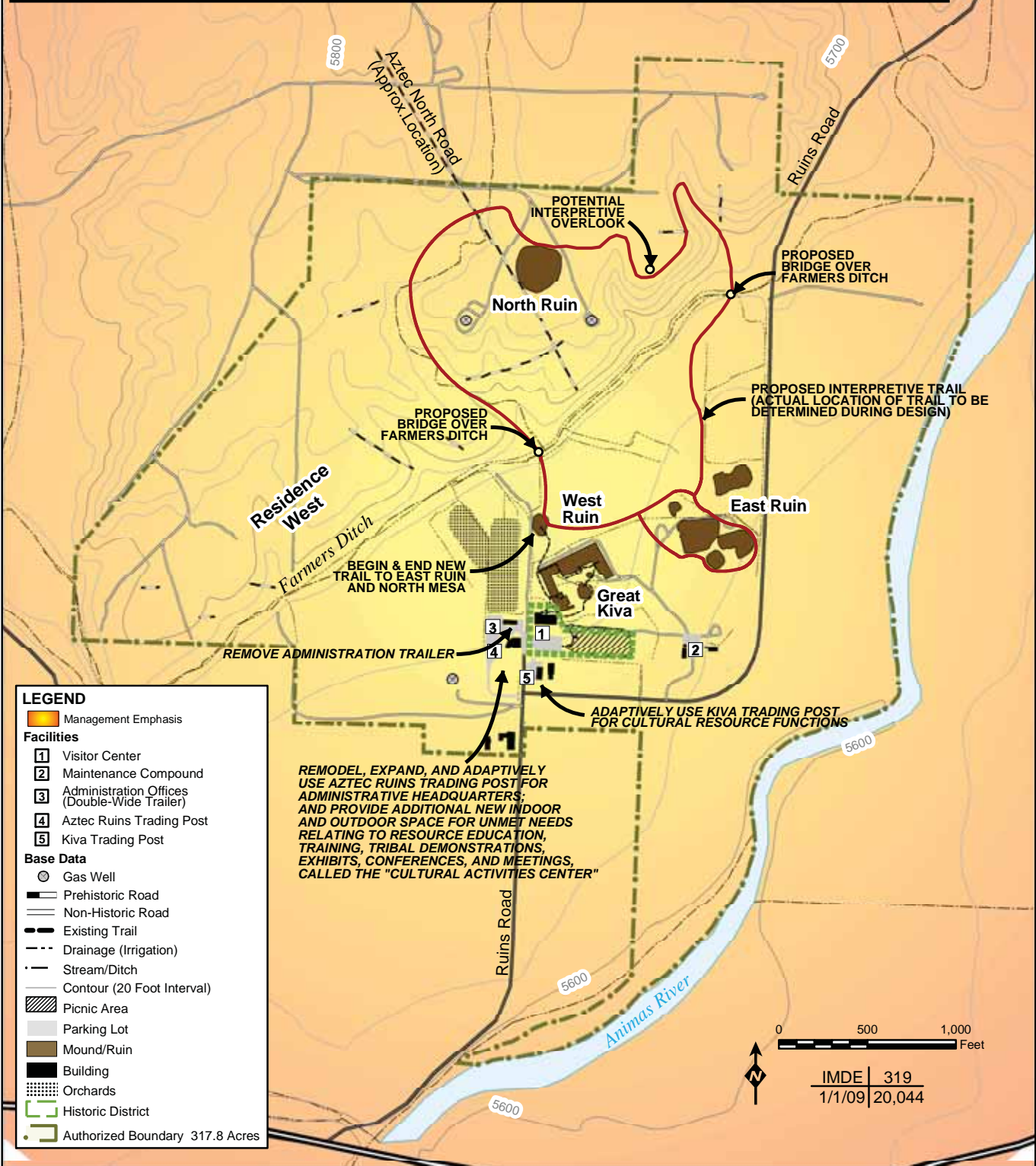
### Alternative 3

National Park Service  
U.S. Department of the Interior



#### ALTERNATIVE 3: Preferred Alternative

**OVERALL MANAGEMENT EMPHASIS:** The emphasis on resource management and visitor experience extends beyond the national monument into the surrounding region. It involves greater focus on outreach and partnerships outside the monument with a broader understanding of the importance of regional context. Enhanced functions occur within the monument, including a new cultural activities center and new administrative facilities.





## ALTERNATIVE 3: PREFERRED ALTERNATIVE

### GENERAL CONCEPT

This alternative emphasizes outreach and partnerships, with a broader understanding of the importance of community and regional context and the intertwined future of both the monument and its surrounding environment (see Alternative 3 map). Aztec Ruins National Monument would strive to be woven into the fabric of the surrounding community and region, working in collaboration and partnership to achieve common goals. Such common goals could broadly include education and appreciation of shared heritage and culture, stewardship of heritage resources, archeological research and preservation, and shared environmental stewardship, in addition to furthering the specific mission of the monument.

Visitors would have expanded opportunities for experiences and learning within the monument, as well as connections to related opportunities in the surrounding region and virtual technology. As with Alternative 2, resource management activities would be expanded within the monument. However, in Alternative 3, such activities would also be linked to opportunities beyond monument boundaries. As with Alternative 2, features that distract visitors from understanding the monument's fundamental resources and values, such as the more recent orchards, would be removed. Visitors would have opportunities to experience resources and stories beyond the West Ruin through additional trails and interpretive tools that would lead visitors to the East Ruin and North Ruin. Existing structures would be remodeled and expanded to improve operations and to provide a community meeting space to welcome collaboration and partnership activities into the monument, including educational opportunities, arts and crafts, demonstrations, and other activities relating to American Indian cultures. This proposed concept would achieve the desired resource conditions, visitor experiences, and facility development outlined in Table 3 and shown in the Management Zones map.

### RESOURCE MANAGEMENT

As in Alternative 2, Aztec Ruins National Monument would holistically approach the treatment of resources found within the monument. This consists of cultural resources, which include archeological resources, historic structures, cultural landscapes, the museum collection, and ethnographic resources; and natural resources, which include vegetation, wildlife, and special status species. In general, resources would be managed in accordance with the monument's *Resources Management Plan*, which addresses both cultural and natural resources and is periodically updated. Resource management would integrate natural and cultural resource management though greater emphasis on the differences among the three cultural landscapes that exist within the monument. Archeological research and preservation activities would be expanded beyond the West Ruin to other areas in the monument, and cultural landscapes would be managed according to a hierarchy of priorities.

In addition to the direction of Alternative 2, Alternative 3 would emphasize collaboration and partnership opportunities to further stewardship of associated resources throughout the region. Greater external collaboration and understanding of regional context would inform resource management within the monument. The monument would seek to connect to larger networks



of inventory and monitoring. Aztec Ruins would expend more effort to share their knowledge and seek best practices among other related National Park Service units and stewards of related resources. Research would be encouraged not only within the monument, but throughout the greater region and Chacoan network. Through these expanded networks, the National Park Service would work with others to seek stewardship of ancient Pueblo resources throughout the region. Increased efforts would be made to develop additional linkages to repositories with related artifacts, objects, and archives, as well as to display collections at suitable locations throughout the region.

## **ARCHEOLOGICAL RESOURCES**

As in Alternatives 1 and 2, inventory, site condition assessments, and monitoring would be conducted to provide the basis for work priorities. Additional preservation activities would occur related to ruins stabilization and backfilling, as outlined in Alternative 2. Detailed planning for expanding these preservation activities would be done in consultation with American Indian tribes and the State Historic Preservation Office.

### **Inventory and Monitoring**

Actions taken in Alternative 3 would be the same as described in Alternative 2. Inventory and site condition assessments could lead to more active preservation of resources throughout the monument, such as the North Ruin.

### **Ruins Stabilization**

As in Alternative 2, ruins stabilization would continue to be performed on the West Ruin, East Ruin, and throughout the rest of the monument, and would address both medium- and high-priority cyclical maintenance needs. Stabilization activities would be both preventive and proactive.

### **Backfilling**

As in Alternatives 1 and 2, programs of backfill and fill level adjustment, including adjusting fill levels, limited fill reduction in critical areas, regrading ground surface, and installing drainage and soil retention structures, would continue at the West Ruin. However, as in Alternative 2, preservation through backfill and fill level adjustment would also be considered for the East Ruin and North Ruin. This would be done through developing a final treatment plan in consultation with the New Mexico State Historic Preservation Officer and American Indian tribes.

### **Research**

Similar to Alternatives 1 and 2, the monument would continue to conduct research and encourage research by other institutions and scholars with the least intrusive techniques. As in Alternative 2, research would be expanded beyond West Ruin to learn more about the entire monument, particularly the new lands added to the north. The interpretive program would strive to inform the public about research methods and findings.

As outlined in Alternatives 1 and 2, archeological data recovery, or excavation, may be permitted if justified by research or interpretive needs or to mitigate potential loss of resources owing to uncontrollable degradation. Tribal input would be gathered through discussions with associated American Indian groups for any proposed project that includes excavation.

## CULTURAL LANDSCAPES

As described in Alternative 2, a hierarchy of importance would be established to resolve conflicting goals where the cultural landscapes overlap. To protect the two most important landscapes, which are eligible for the National Register of Historic Places, and to provide improved opportunities for visitor understanding of the most significant resources, the contributing landscape elements in the Prehistoric Designed Landscape and the Historic Designed Landscape would be retained and enhanced. Elements of the least important Historic Vernacular Landscape that conflict with or degrade the two primary landscapes would be considered for removal.

As outlined in Alternative 2, other primary actions related to cultural landscapes include the following:

- The Prehistoric Designed Landscape would be the highest priority for restoration and enhancement actions when competing for scarce dollars.
- The Historic Designed Landscape (visitor center complex), which is surrounded by the Prehistoric Designed Landscape, would be managed to protect features that contribute to its eligibility for the National Register of Historic Places, as well as to minimize impacts to the character-defining features of the surrounding Prehistoric Designed Landscape.
- Orchards and other ornamentals of the Historic Vernacular Landscape would be removed because they conflict with visitor understanding of the Prehistoric Designed Landscape.
- Pear and apple orchards just to the west of the West Ruin, and all other orchards, fruit trees, and ornamentals, such as roses and lilacs, would be removed. Other features of the Historic Vernacular Landscape would be evaluated on a case-by-case basis to determine whether they should remain or should be removed.
- Native vegetation that is either contributing to or compatible with what might have appeared in the ancient Pueblo scene would be restored and maintained throughout the Prehistoric Designed Landscape. Vegetation within the Historic Designed Landscape would be managed for the function and integrity of the Historic District.

Additional details to implement this alternative would be developed in a separate vegetation and cultural landscapes management plan.

## MUSEUM COLLECTIONS

As in Alternatives 1 and 2, all collections would be managed according to the monument's *Collections Management Plan* (1980). The monument's archives and archeological collections would continue to be stored at the Hibben Center. The monument's history collection would be moved from the national monument to the Western Archeological and Conservation Center. The natural history collection would be moved to the Northern Arizona Facility. Object and artifact collections related to the occupation of the site would continue to be evaluated for potential additions to public display collections within the monument. In Alternative 3, there would be greater opportunities to form partnerships and link with related repositories throughout the region.

## VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES

Opportunities for visitors to experience and learn about Aztec Ruins would be greatly expanded, similar to Alternative 2. Experiences and learning opportunities such as the visitor center, self-guided walks through the West Ruin, and picnicking would continue. Primary visitor access would continue to be from Ruins Road. There would be minor modifications to the visitor center and a major upgrade to exhibits. The monument would continue to strive to improve universal access to programs and facilities. The orchards would be removed to enhance visitor understanding of the ancient Pueblo landscape, and expanded research would inform new exhibits and interpretive programs. In Alternative 3, monument staff would increase its involvement in interpretive programs outside of the monument. Although the monument would still be largely a day-use area, there would be increased opportunities for evening activities at the proposed cultural activities center.

A new one and one-half-mile interpretive trail loop would be constructed, as described in Alternative 2, that would greatly expand visitor experience and understanding of the site. The trail would begin and end at West Ruin and loop to East Ruin and North Ruin, via the North Mesa, and would provide visitors with the opportunity to be immersed in and view a greater variety of the monument's resources. The proposed location and layout for the trail is shown on the Alternative 3 map. However, as noted on the map, the final trail layout and location would be determined during a more detailed design phase. Additional compliance would also be required to analyze impacts associated with the final location.

In Alternative 3, other trails may be considered in the future to expand visitor understanding of resources such as the riparian/riverine environment. Such future trails could be located in all management zones, except the Resource Preservation Emphasis Zone. These trails might eventually connect with future regional trails outside the monument.

In Alternative 3, additional emphasis would be placed on visitors understanding stories related to Aztec Ruins and encouraging visitors to see related regional prehistoric sites. Collaboration and partnerships with American Indian tribes and others would greatly expand interpretation opportunities regarding the continuum of human habitation, history of archeological research and preservation in the Southwest, and interpretation of Native American agriculture in the region through demonstrative farming plots. Education and outreach would be a priority. Staff would strive for greater integration of Aztec Ruins' rich cultural history and research activities with regional school curriculum requirements. Staff would also strive to engage and welcome a wide spectrum of cultures and generations and try new technologies and communication networks to make connections.

A cultural activities center would be added to the new administration facilities in the expanded Aztec Ruins Trading Post to facilitate tribal and community involvement in providing these new and enhanced visitor and educational experiences. It would function as a much-needed space that would support activities and educational programs for visitors, American Indian tribes, school groups, and community members that relate to the fundamental resources and values of the monument. Secondly, the cultural activities would serve as a monument and community resource, providing space for local meetings. Creating this space in the monument would also support goals of outreach and partnerships with the tribes, universities and other researchers, other agencies, and the local community. More specifically, the building would be used for the following functions:

- Conferences and symposiums
- Training and educational seminars
- Tribal consultation with the monument, the local community, and other tribes
- Periodic indoor tribal demonstrations that are open to the public
- Large interpretive presentations and multimedia events
- National Park Service and community partnership meetings
- General public meetings
- National Park Service meetings, including regional staff, adjacent parks, and monument staff
- Interagency meetings

The National Park Service would actively seek partnerships and relationships that would expand interpretation of the cultural resources of the monument and beyond, to include interpretation opportunities related to evolving cultural histories. Possible actions would include:

- Continual sharing of ideas to enhance the visitor experience, understanding, and enjoyment within the monument and to enhance the understanding and appreciation of American Indian culture throughout the region.
- Expanding public and tribal outreach and information exchange opportunities in areas such as archeo- and ethno-astronomy and farming practices.
- Refinement of the monument's interpretive program, including planning and design of indoor interpretive exhibits and outdoor wayside exhibits, and the presentation of cultural demonstrations.
- Interpretation of the Animas River and the role it played in the settlement and continued occupation of the site.
- Seeking partnerships or other mechanisms, such as founding of a friends group, to facilitate operations of interpretive opportunities related to resources represented within the monument as well as on a regional level.
- Establishing a trail connection to a future trail along the Animas River that would include interpretive opportunities.
- Presenting and describing in depth the relationship of regional cultural resources to resources within the monument in cooperation with federal, state, and local agencies.
- Expansion of related educational opportunities outside the monument boundary, in terms of electronic outreach and personal presentations.
- Assigning a staff position to implement tasks associated with this vision and to become the permanent partnership liaison and educational outreach coordinator.

## **FACILITIES AND OPERATIONS**

Existing facilities (structures, roads, parking areas, and picnic area) would generally be maintained. Similar to Alternative 2, the Kiva Trading Post and the Aztec Ruins Trading Post would be remodeled and rehabilitated to improve monument operations, and the administration trailer would be removed. However, in Alternative 3, the rehabilitation of the Aztec Ruins Trading Post would be expanded to include a new cultural activities center. The monument would strive to demonstrate environmental stewardship and sustainability through all aspects of planning, design, construction, resource management, and operations.

## **VISITOR CENTER**

New exhibits would be installed as described in Alternatives 1 and 2. The building would continue to be used as a visitor center and for some staff offices. The historic character of the structure (eligible for the National Register of Historic Places) would be maintained.

## **ADMINISTRATION TRAILER**

The existing administration trailer would be removed, as in Alternative 2.

## **MAINTENANCE COMPLEX**

As in Alternatives 1 and 2, the existing maintenance complex would continue to be used by maintenance and cultural resource personnel for offices and storage and as a garage and staging area for maintenance and stabilization functions.

## **AZTEC RUINS TRADING POST**

The Aztec Ruins Trading Post would be rehabilitated to serve as the administrative headquarters for the monument and to accommodate the administrative functions described in Alternative 2. In addition to the administrative function, a new cultural activities center would be constructed under Alternative 3 as part of this rehabilitation project. Existing add-on construction in the trading post would be replaced by new construction and expanded into previously disturbed areas surrounding the building to provide for the new space. Upon completion, the rehabilitated building would be 6,000 square feet, consisting of 1,278 square feet of original space and 4,722 square feet of new construction (subject to changes during the design phase). Approximately 2,200 square feet of the new construction represents the cultural activities center. Approximately 600 square feet of outdoor covered space would also be provided for uses associated with the interior activities center.

## **KIVA TRADING POST**

As in Alternatives 1 and 2, the Kiva Trading Post would be rehabilitated for cultural resource offices, work space, and a wet lab (laboratory area where artifacts are washed, dried, and prepared for curation).

## **OUTREACH AND PARTNERSHIPS**

As in Alternatives 1 and 2, Aztec Ruins National Monument would continue to work cooperatively with other federal, state, and local agencies; American Indian tribes; adjacent landowners; not-for-profit groups, such as friends or cooperating associations; and others to identify and achieve broad goals in resource preservation and environmental sustainability. Through a new staff position in Alternative 3, the monument would also provide increased educational opportunities relating to the ancient Pueblo culture, both inside and outside of the monument boundary, as well as emphasize a broader context for outreach and partnerships.

A number of such opportunities have been identified under Alternative 3 in earlier discussions about resource management, visitor and educational opportunities, and facilities and operations. Through these relationships, and with the addition of a new staff position and the cultural activities center that provides much needed space, Aztec Ruins would be able to provide and receive even more valuable assistance in the form of educational programs; living history



demonstrations; cultural resource identification, preservation, research and interpretation; fund-raising campaigns; habitat restoration; ecosystem management; and a host of other activities.

In implementing this alternative, the National Park Service would also seek partnerships in the following areas:

- Planning, design, and construction of proposed interpretive trails and potential connecting trails.
- Planning, design, fund-raising, and construction of proposed modified and new facilities, especially the cultural activities center.
- Maintenance of monument resources and facilities.
- Opportunities to demonstrate and promote environmentally excellent planning, design, and construction practices and to more effectively support sustainable economic development in the region.

### **COMMUNICATION WITH AMERICAN INDIAN TRIBES**

As in Alternatives 1 and 2, the National Park Service would continue to foster relationships and cultural sensitivity with the tribes and nations associated with Aztec Ruins National Monument. However, with greater emphasis on outreach and partnerships and a new cultural activities center in Alternative 3, the National Park Service would have the ability and space to promote the involvement of American Indian tribes in the interpretation and telling of stories related to the monument's fundamental resources and values. This enhanced emphasis and space would also encourage more frequent and effective communication between monument staff and affiliated tribes and provide for ongoing educational programs and activities that would benefit visitors and tribal members alike.

### **STAFFING AND COSTS**

Under Alternative 3, the monument staffing level would be 19 full-time equivalent employees. Four of these positions would continue to be shared with Chaco Culture National Historical Park, and operational needs would continue to be met through several sources of funding. As described in Alternative 1, all staffing proposals would be consistent with the position management plan identified in the core operations analysis and the efficiencies recognized in the creation of the Eastern Four Corners Group realignment. Any new positions may be filled by realignment of existing positions, shared services within the "Group" realignment, or as a result of the base funding increase request identified in the core operations analysis.

Annual operating costs would be \$1.32 million, and one-time facility costs for the design, construction, rehabilitation, or adaptive reuse of facilities would be \$3.44 million. Non-facility costs for one-time removal of the orchards would be \$20,000. A comparison of costs by alternative and more specific information is provided in Appendix D.

The cost figures provided here are for alternatives comparison purpose only — they are not to be used for budgeting purposes. More specific costs would be determined in subsequent, more detailed planning and design exercises, in consideration of the design of facilities, identification of detailed resource protection needs, and changing visitor expectations. The separate vegetation and cultural landscapes management plan, which will follow this GMP, would provide some of these more detailed costs.

Actual costs to the National Park Service would vary, depending on if and when the actions are implemented and on contributions by partners and volunteers. The implementation of the approved plan, no matter which alternative is selected, would depend on future National Park Service funding levels and service-wide priorities and on partnership funds, time, and effort. The approval of a GMP does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the plan could be many years into the future.

## **ACTIONS CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS**

During the planning process, some additional actions were considered, but dismissed from further analysis for various reasons described below.

### **PRESERVATION OF THE ORCHARDS**

Rehabilitating the pear and apple orchards and preserving them into the future was considered as an option. The one-time restoration cost would be approximately \$55,000, followed by annual maintenance costs of approximately \$13,000. Rehabilitating and preserving the orchards was not considered viable and was dismissed from further analysis for the following reasons:

- Infiltration of irrigation water adjacent to the ruins is a major cause of deterioration to ancient architecture.
- The pear and apple orchards are not contributing features to the purpose, significance, fundamental resources and values, or mission of Aztec Ruins National Monument. Additionally, they are not contributing features of the most important cultural landscape in the monument, wherein they occur — the Prehistoric Designed Landscape.
- The orchards would continue to be visual distractions to the visitor on the Prehistoric Designed Landscape, since fruit trees did not exist in the ancestral Pueblo cultural landscape, nor were orchards of any kind part of the ancient economy.
- The estimated long-term cost of restoring, preserving, and maintaining the orchards would be more than the estimated cost of removing them and replacing them with native vegetation.
- Preserving the orchards is not considered essential to the core mission of the monument. Thus, expending funds to preserve them would be a low priority when considering the limited funds available to preserve and operate the monument and its core mission.

### **STAFF OFFICES IN TOWN**

Over the years discussions have occurred about the viability of locating the National Park Service administrative offices in the town of Aztec rather than at the monument. This option was considered during the GMP planning process. However, a preliminary analysis determined that necessary and appropriate office space for all the needs of National Park Service management, administration, and operations at one location was not available in town, and it would be undesirable to separate the staff into different locations. Furthermore, for security purposes, the National Park Service believes that it is desirable to have a staff presence within the boundary of the monument. Community and tribal leaders support this desire. Therefore, the option of relocating administrative offices in town was rejected and dismissed from further analysis.

## NEW MAINTENANCE AND STAFF HOUSING COMPLEX

The 1989 *General Management Plan/Development Concept Plan for Aztec Ruins National Monument* proposed that the maintenance function and staff housing be moved from their current location in the maintenance compound to new facilities in a different area of the monument. This proposal has not yet been implemented but was reconsidered during this GMP planning process. Because it is no longer viable, the proposal was dismissed from further analysis for the following reasons.

Since the 1989 GMP was written, staff housing within the monument is no longer needed. The housing that once existed in the maintenance area has been converted to office space for maintenance personnel. As a result, the existing maintenance compound sufficiently meets the monument's needs and is in a location that does not adversely impact the visitor experience or the monument's important resources. A new maintenance complex would also represent a substantial cost that would compete with other monument management priorities.

Although proposed in the development zone, new development of the magnitude proposed in the 1989 plan within the limited land base of the monument would be visible from numerous locations within the visitor use areas of the Prehistoric Designed Landscape, as well as be incompatible with that landscape. Thus, such development would adversely impact visitor understanding and experience of the monument's fundamental resources.

It was determined in this GMP that a more sustainable, aesthetic, and cost-effective approach to development would be to adaptively reuse existing structures such as the Aztec Ruins Trading Post, the Kiva Trading Post, and existing maintenance buildings. This approach would also help facilitate the visitor's experience of the monument as they transition from the modern City of Aztec into the earlier times of the site (represented by the Aztec Ruins Trading Post, the Kiva Trading Post, and the historic visitor center) and then into the prehistoric ruins.

## MITIGATION MEASURES FOR THE ACTION ALTERNATIVES

The following mitigation measures would be used to minimize the effects of any of the action alternatives.

### GENERAL

- All new construction would be completed using sustainable practices, such as the use of environmentally friendly materials, sustainable building materials, and efficient utility systems. Components of such projects would also be assessed for visual quality. Utilities and support functions, such as water, sewer, electricity, roads, and parking areas, would be evaluated and designed to mitigate visual impacts.
- A construction zone and construction staging area would be identified and demarcated with construction tape or some similar material prior to initiation of building rehabilitation activities. The tape would define the zone and confine the activity to the minimum area needed for project implementation. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the zone as defined by the fencing. In addition, the National Park Service would ensure that all workers are informed that damage to resources outside the scope of work is subject to prosecution, fine, restitution costs, and other penalties.

### CULTURAL RESOURCES

- The National Park Service would ensure that all construction workers are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites and historic properties. Workers would also be instructed on procedures to follow in case a previously unknown archeological resource is uncovered during construction. Preservation and restoration workers and supervisors would be informed about the special sensitivity of the Historic District's values and regulations.
- To minimize the amount of ground disturbance, staging and stockpiling areas would be located in previously disturbed sites, away from visitor use areas to the extent possible. Existing native vegetation at the site would be undisturbed to the extent possible.
- Compliance with Section 106 would be completed, including any needed archeological investigations, prior to any land-modifying activity such as construction. A qualified professional archeologist would inspect the ground surface of the proposed development site and the immediate vicinity for the presence of cultural remains, both prehistoric and historic. Similarly, in those areas where subsurface remains appear likely, an archeologist would be on hand to monitor land-modifying actions.
- Some undertakings would require project-specific consultation and development of mitigation measures that would be outlined in an approved treatment plan.
- Should preservation or restoration activities result in unearthing previously undiscovered cultural resources, work would be stopped in the area of any discovery and consultation would occur with the State Historic Preservation Officer, Tribal Historic Preservation Officer, other tribes, and the Advisory Council on Historic Preservation, as necessary,



according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.

- Impacts to historic structures would be minimized by ensuring that all proposed rehabilitation be conducted in a manner consistent with the *Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Restoring, and Reconstructing Historic Structures*.

## NATURAL RESOURCES

- The National Park Service would ensure that construction workers and supervisors are informed about wildlife values and regulations.
- Temporary impacts associated with 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 materials would be used, such as hay bales, which could contain seeds of undesirable or harmful alien plant species. Standard erosion control measures, such as silt fences and/or sandbags would also be used to minimize any potential soil erosion.
- 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 returned to or near the original location and supplemented with scarification, mulching, seeding, or planting with species native to the immediate area (per the vegetation and cultural landscapes management plan). This would reduce construction scars and erosion.
- Soil 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. If used, silt fencing fabric would be inspected weekly or after every major storm. Silt removal would be accomplished in such a way as to avoid its introduction into any wetlands or flowing water bodies.
- Revegetation plantings would use native species, as directed by the vegetation and cultural landscapes management plan.

## VISITORS

- Construction activities would be scheduled to minimize building rehabilitation and trail construction impacts on visitors. Areas not under construction would remain accessible to visitors as much as is safely possible.

## NPS PREFERRED ALTERNATIVE

The alternatives presented in this GMP were developed with National Park Service staff and monument stakeholders such as affiliated American Indian tribes, city and county representatives, and other agencies. Opportunities and issues identified during public scoping meetings were foundational in determining the range of actions considered in the alternatives.

A series of workshops were held in 2004 that included the following steps: refine planning opportunities, interests, and issues; analyze resources and create resource areas; define management zones and develop alternatives; identify partnership opportunities; and present preliminary alternatives at public open houses. The two action alternatives were determined from this process.

The Preferred Alternative was selected during a subsequent workshop when the potential impacts, both beneficial and adverse, were identified by National Park Service staff and monument stakeholders. The advantages of each alternative were weighed in relationship to the GMP planning issues and opportunities and desired future conditions for the monument. Alternative 3 was identified as the alternative that would best develop opportunities and achieve desired conditions, particularly related to expanded visitor experience, outreach, and partnerships.

## ENVIRONMENTALLY PREFERRED ALTERNATIVE

An environmentally preferred alternative must be identified in an environmental document to meet the requirements of the National Environmental Policy Act of 1969 (NEPA). The environmentally preferred alternative must meet the criteria that were established in Section 101(b) of NEPA and subsequently adopted by the National Park Service. This includes alternatives that:

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

“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 (CEQ), “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” [40 CFR 1500-1508], *Federal Register* Vol. 46, No. 55, 18026–18030, March 23, 1981: Question 6a).

Alternative 3, the Preferred Alternative, has the most advantages with respect to the criteria in Section 101(b) of the NEPA compared with the other alternatives. It also meets the purpose and need for the GMP. The expanded preservation efforts and visitor access to other significant cultural resources, the increased interpretation of all cultural resources, the new cultural activities center, and the major emphasis on partnerships and collaborative management to achieve monument goals would meet criteria 1 through 5. This alternative is preferred over the other alternatives relative to these criteria because it offers more diverse visitor opportunities and opportunities to connect with the City of Aztec and American Indian tribes, emphasizes a stronger management of natural resources and understanding of prehistoric sites within a regional context, provides most for growing demands while protecting resources, and provides stronger preservation of the ruins. Criterion 6 could be met by ensuring that all future building design and construction at Aztec Ruins follows sustainable design principles.

Alternative 1, the No-Action Alternative, represents how the monument is currently managed and would be managed into the future without a new GMP. As noted earlier, it was included to provide a baseline against which to compare the effects of the action alternatives. It only

minimally meets the six criteria compared with Alternative 3. Furthermore, it does not adequately address the GMP's purpose and need, or key planning issues outlined in Chapter 1.

Alternative 2 would meet criteria 2, 3, 5, and 6 by improving resource preservation and visitor access to more cultural resources. Because it does not pursue strong partnerships and collaborative management opportunities, focuses only on providing new space for administrative purposes rather than community purposes, and does not broaden the scope of interpretive opportunities through collaboration with tribes, this alternative would not meet criteria 1 and 4 to the same degree as Alternative 3 would.

After a review of the alternatives' environmental consequences, it was determined that Alternative 3, the Preferred Alternative, is also the environmentally preferred alternative. This alternative best realizes the full range of national environmental policy goals, as stated in Section 101 of the NEPA.

**Table 5: Summary Of Alternatives**

KEY ACTIONS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
<b>Overall Management Emphasis</b>	Continuation of existing management direction, with primary emphasis of resource management and visitor experience on the West Ruin area.	Expand the primary emphasis of resource management and visitor experience beyond West Ruin to include East Ruin, North Ruin, and other areas in the monument.	Same as Alternative 2, plus: Place a greater emphasis on outreach and partnerships, with a broader understanding of the importance of community and regional context and the intertwined future of both the monument and its surrounding environment.
<b>Resource Management</b>	Holistic management of natural and cultural resources would stay primarily focused on resources within monument boundaries.	Same as Alternative 1.	Same as Alternatives 1 and 2, plus: Seek collaboration and partnerships in resource stewardship. Greater recognition of regional context.
Archeological <sup>1</sup> Resources	Preservation activities primarily focused on the West Ruin. Activities include: Inventory and monitoring. Ruins stabilization. Backfilling and fill level adjustment. Research encouraged, emphasizes minimum impact.	Archeological preservation activities described in Alternative 1 would be expanded to include more areas throughout the monument, especially at East Ruin and North Ruin.	Same as Alternative 2, plus: Seek to engage in networks for regional inventory and monitoring. Seek to share knowledge and best practices. Encourage research and sharing of information throughout the Southwest.
Cultural Landscapes	Retain features of all three cultural landscapes. Orchards are retained and irrigated. Complete a vegetation and cultural landscapes management plan.	Establish a hierarchy of importance among the overlapping cultural landscapes to resolve issues that arise when goals are in conflict. Prehistoric Designed Landscape — eligible for National Register of Historic Places (NRHP) and fundamental resource — preserve and maintain. Historic Designed Landscape — eligible for NRHP — protect features. Historic Vernacular Landscape — not eligible for NRHP — remove features that directly conflict with Prehistoric Designed Landscape and resources. Orchards would be removed. Other features may be left in place and considered for removal only if there is a compelling management reason. Complete a vegetation and cultural landscapes management plan.	Same as Alternative 2.



KEY ACTIONS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
Museum Collections	Collections would be placed at the Hibben Center, Western Archeological and Conservation Center, or Northern Arizona Facility per the <i>Park Museum Collection Storage Plan</i> .  Collections would continue to be evaluated for potential additions to public display.	Same as Alternative 1.	Same as Alternatives 1 and 2, plus:  An emphasis on developing additional linkages to related repositories throughout the region.
<b>Visitor Experience and Educational Opportunities</b>	Primary experience is visitor center and self-guided trail to the West Ruin.	Visitor opportunities would be expanded to the North Ruin and East Ruin.	Same as Alternative 2, plus: Additional opportunities for education and outreach in the greater region.
Access	Visitor center would continue to be first stop and gateway to site.  Picnicking would continue.  Primarily a day-use area, with occasional evening programs.	Same as Alternative 1.	Same as Alternatives 1 and 2, plus:  Potentially more evening programs at the cultural activities center.
Interpretation and Education	Visitor center would continue to be central to interpretation and education. Exhibits would be improved.  West Ruin self-guided hike remains primary experience close to the resource.  Staff would be involved in interpretation and education outside of the monument, as time and funding permit.	As in Alternative 1, visitor center would continue to be central to interpretation and education. Exhibits would be improved.  In addition to the West Ruin experience:  Visitor experience close to the resource would be expanded from West Ruin to new opportunities to visit East Ruin and North Ruin.  Interpretation would be expanded to include unexcavated resources, cultural landscapes, collections, preservation activities, and current research.  As in Alternative 1, staff would be involved in interpretation and education outside of the monument, as time and funding permit.	Interpretation opportunities would be expanded and improved as in Alternative 2, plus:  Additional emphasis would be placed on visitors to the monument understanding the greater context of Aztec Ruins.  Visitors would be encouraged to see related regional prehistoric sites.  Increased collaboration and partnerships with American Indian tribes and others would greatly expand interpretation opportunities.  Education and outreach would be a staff priority.  A cultural activities center would be created to foster interaction with tribes, partners, and the surrounding community.
Trails	The West Ruins Trail (0.40 mile) would be maintained.	Same as Alternative 1, plus:  A new loop interpretive trail (1.5 miles) would be constructed to East Ruin and North Ruin from West Ruin.	Same as Alternative 2, plus:  Other trails may be considered in the future, and may eventually connect with future regional trails outside the monument.
<b>Facilities</b>	Existing facilities (structures, roads, parking areas, and picnic area) would generally be maintained. Structures would be remodeled and rehabili-	Same as Alternative 1, except there would be different treatments for some structures.	Same as Alternative 2, plus:  The addition of space for a cultural activities center.

KEY ACTIONS	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
	tated, and in one instance, removed to improve monument operations. There are no new structures proposed.		
Structures	The visitor center would continue to be maintained and used as a visitor center, with some staff offices. Its historic character would be maintained.	Visitor center — same as Alternative 1.	Visitor center — same as Alternatives 1 and 2.
	Administrative headquarters would remain in the doublewide administration trailer.	The administration trailer would be removed.	The administration trailer would be removed — same as Alternative 2.
	Aztec Ruins Trading Post would be removed.	Aztec Ruins Trading Post would be expanded and adaptively used to serve as administrative headquarters.	Aztec Ruins Trading Post would be expanded and adaptively used to serve as administrative headquarters, as in Alternative 2, plus: A new space would be constructed as part of the expanded building to serve as the cultural activities center to support the goals of this alternative.
	The Kiva Trading Post would be adaptively used for cultural resources offices, workspace, and a wet lab.	Kiva Trading Post — same as Alternative 1.	Kiva Trading Post — same as Alternatives 1 and 2.
	The maintenance complex would continue to be maintained and used for offices, storage, garage space, and a staging area.	Maintenance complex — same as Alternative 1.	Maintenance complex — same as Alternatives 1 and 2.
<b>Outreach and Partnerships</b>	NPS would continue current relationships with associated American Indian tribes, local and state governments, neighboring NPS units, and others to share information, and to identify and reach mutual goals related to the ancestral Pueblo culture.	Same as Alternative 1.	Same as Alternatives 1 and 2, plus: Emphasize outreach and partnerships Recognize the importance of community and regional context Increase work in collaboration and partnership with others to achieve common goals.
<b>Staffing and Costs</b>			
Annual Operating Costs (ONPS)	\$1,130,000	\$1,250,000	\$1,320,000
Staffing (FTE)	16	18	19
Total One-Time Costs	\$430,000	\$2,420,000	\$3,460,000

<sup>1</sup> For Archeological Resources, West Ruin, East Ruin, and North Ruin refer to not only the major ruin that is named, but also to the complex of archeological features and sites associated with that major ruin.

**Table 6: Summary of Environmental Consequences**

IMPACT TOPIC	ALTERNATIVE 1: No Action	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
<b>Archeological Resources</b>	Preservation activities would be focused on West Ruin, resulting in long-term, moderate, beneficial impacts to West Ruin and long-term, negligible to minor, adverse impacts to East Ruin and North Ruin. Heavy visitation at West Ruin and ground-disturbing activities on North Mesa could also result in long-term, negligible to minor, adverse impacts. Inventory and monitoring, nonintrusive research methods, and the rehabilitation of the Kiva Trading Post would have long-term, negligible to minor, beneficial impacts. Cumulative impacts would be long term and adverse, but minor.	Preservation activities would be expanded throughout the monument, resulting in long-term, minor to moderate, beneficial impacts to archeological resources. New trail construction and related visitor use could result in long-term, minor, adverse impacts to East Ruin, North Ruin, and other archeological resources. Monitoring and inventorying activities and nonintrusive research methods would occur more frequently, resulting in long-term, minor, beneficial impacts, as would the rehabilitation of the Kiva Trading Post. Cumulative impacts would be long term and minor beneficial.	The new cultural activities center at the Aztec Ruins Trading Post and the enhanced partnership and outreach opportunities would result in long-term, minor to moderate, beneficial impacts to archeological resources. Similar to Alternative 2, preservation activities in Alternative 3 would be expanded throughout the monument, resulting in long-term, minor to moderate, beneficial impacts to archeological resources. New trail construction and related visitor use would have long-term, minor, adverse impacts to East Ruin, North Ruin, and other archeological resources. Inventory, monitoring, nonintrusive research, and rehabilitation of the Kiva Trading Post would result in long-term, minor, beneficial impacts. Cumulative impacts would be long-term, beneficial, and range from minor to moderate.
<b>Cultural Landscapes</b>	Retention of the orchards and other features of the Historic Vernacular Landscape would result in moderate, adverse impacts to the Prehistoric Designed Landscape and negligible, beneficial impacts to the Historic Vernacular Landscape in the long term. Removal of existing nonnative vegetation and restoration with native species, outside the Historic Designed Landscape, would result in some long-term, negligible, beneficial impacts to the prehistoric scene. Cumulative impacts would be minor and adverse in the long term.	The removal of the pear and apple orchards would result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape and long-term, negligible, adverse impacts to the Historic Vernacular Landscape. Other contributing features to the Historic Vernacular Landscape that conflict with NRHP-eligible landscapes would be evaluated for retention or removal on a case-by-case basis or through other plans. The trail would cause long-term, minor, adverse impacts to the Prehistoric Designed Landscape. Rehabilitation of the Aztec Ruins and Kiva Trading Posts and removal of the administration trailer would result in long-term, minor to moderate, beneficial impacts to the Prehistoric Designed Landscape. Cumulative impacts would be long term, moderate, and beneficial.	Removal of the pear and apple orchards would result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape and long-term, negligible, adverse impacts to the Historic Vernacular Landscape. Other contributing features to the Historic Vernacular Landscape that conflict with NRHP-eligible landscapes would be evaluated for retention or removal on a case-by-case basis or through other plans. The trail would cause long-term, minor, adverse impacts to the Prehistoric Designed Landscape. Rehabilitation of the Aztec Ruins and Kiva Trading Posts and removal of the administration trailer would result in long-term, negligible to moderate, beneficial impacts to the Historic Designed Landscape. Cumulative impacts would be long-term, moderate and beneficial.
<b>Vegetation</b>	Vegetation management strategies would result in long-term, moderate, adverse	Removal of nonnative vegetation, such as the pear and apple orchards would	Removal of nonnative vegetation, such as the pear and apple orchards would result in long-

IMPACT TOPIC	ALTERNATIVE 1: No Action	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
	impacts to native vegetation regimes, because pear and apple orchards would be maintained. However, other strategies that promote removal of nonnative vegetation and restoration of native species would result in some negligible, beneficial impacts over the long term. Cumulative impacts would be long-term, adverse, and moderate.	result in long-term, moderate, beneficial impacts to vegetation. Some removal of native vegetation due to the trail to North Ruin and East Ruin would result in long-term, minor, adverse impacts. Because building construction activities would occur in previously disturbed areas, no vegetation impacts would occur. Cumulative impacts would be minor and beneficial in the long term.	term, moderate, beneficial impacts to vegetation. Some removal of native vegetation because of the trail to North Ruin and East Ruin and potential connections to a river trail would result in long-term, minor, adverse impacts. Because building construction activities would occur in previously disturbed areas, no vegetation impacts would occur. Cumulative impacts would be minor and beneficial in the long term.
<b>Wildlife</b>	Impacts to local wildlife would be long-term, minor, and adverse because the nonnative orchards would be retained. Cumulative impacts would be long term, minor, and adverse.	Removal of the orchards would have a long-term, minor, beneficial impact on native wildlife, once native vegetation is restored. Wildlife would be adversely impacted in the short term, because of trail construction activities, and in the long term, because of trail use by visitors, resulting in minor adverse impacts. Rehabilitation of the trading posts would result in no impacts because of the lack of quality habitat in their vicinity. Cumulative impacts would be long term, negligible to minor, and beneficial.	Removal of the orchards would have a long-term, minor, beneficial impact on native wildlife, once native vegetation is restored. Wildlife would be adversely impacted in the short term, because of trail construction activities, and in the long term, because of trail use by visitors, resulting in minor adverse impacts. Rehabilitation of the trading posts, including the new cultural activities center, would have no impacts because of the lack of quality habitat in their vicinity. New trails that connect to a proposed community trail could result in some long-term, minor, adverse impacts. Cumulative impacts would be long term, negligible to minor, and beneficial.
<b>Special Status Species</b>	Riparian vegetation and water sources would be maintained, resulting in no impacts to special status species. There would be no cumulative impacts.	Construction activities related to the trail to East Ruin and North Ruin would result in short-term, negligible to minor, adverse impacts and would not likely adversely affect any special status species. Cumulative impacts would be long term, minor, and adverse.	Construction activities related to the trail to East Ruin, North Ruin, and potentially the Animas River and the rehabilitation of the Aztec Ruins and Kiva Trading Posts would result in short-term, negligible to minor, adverse impacts and would not likely adversely affect any special status species. Cumulative impacts would be long term, minor, and adverse.
<b>Visitor Experience and Educational Opportunities</b>	Visitor access would continue to be limited to the West Ruin, resulting in long-term, minor, adverse impacts to visitor experience. Retention of the administration trailer, the orchards, and other features of the Historic Vernacular	Long-term, minor to moderate, beneficial impacts would occur to the visitor experience from development of the new trail, expanding the interpretive and educational focus for visitors beyond the West Ruin to other resources, removing the	Long-term, minor to moderate, beneficial impacts would occur to the visitor experience from development of the new trail, expanding the interpretive and educational focus for visitors beyond the West Ruin to other resources, removing the

IMPACT TOPIC	ALTERNATIVE 1: No Action	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
<b>Visitor Experience and Educational Opportunities</b> continued	Landscape would continue to degrade the prehistoric scene for some visitors, resulting in long-term, minor to moderate, adverse impacts. Improved visitor understanding related to limited partnerships and community education would contribute to long-term, minor, beneficial impacts. Cumulative impacts would be long term, minor, and adverse.	administration trailer and rehabilitating the Aztec Ruins and Kiva Trading Posts, and removing the pear and apple orchards and other ornamental vegetation that detracts from the Prehistoric Designed Landscape. Long-term, minor, beneficial impacts would also occur with the outreach and community partnership program. Cumulative impacts would range from long term, minor adverse to moderate beneficial, depending on the degree of future development outside the monument boundaries.	administration trailer and rehabilitating the Aztec Ruins and Kiva Trading Posts, and removing the pear and apple orchards and other ornamental vegetation that detracts from the Prehistoric Designed Landscape. In Alternative 3, the new cultural activities center and the partnership program would result in long-term, moderate, beneficial impacts owing to expanded information sharing and educational opportunities. Some long-term, minor, adverse impacts would occur to the viewshed because of the new facility and trails. Cumulative impacts would be long term, moderate, and beneficial.
<b>Socioeconomic Environment</b>	Visitor spending would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. Ongoing monument operations, current employee spending, and proposed rehabilitation projects would also contribute to the local economy, resulting in short-term and long-term, negligible, beneficial impacts. Cumulative impacts would be long term, minor, and beneficial.	Although visitor opportunities would be expanded at the monument, visitation levels would remain similar to current levels and visitor's length of stay would not increase substantially. Thus, visitor spending would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. Ongoing monument operations, current employee spending, and an increased number of short-term construction projects would also contribute to the local economy, resulting in short-term and long-term, minor, beneficial impacts. Impacts to adjacent landowners would be short term, negligible to minor, and adverse. Cumulative impacts would be long term, minor, and beneficial.	Annual visitation would most likely increase because of the development and promotion of the cultural activities center, increased local and regional partnership opportunities, and the enhanced interpretive and educational focus on regional resources. Thus, visitor spending would most likely increase beyond current levels, resulting in long-term, minor to moderate, beneficial impacts to the local economy. Ongoing monument operations, increased employee spending, and an increased number of short-term construction projects would also contribute to the local economy, resulting in short-term and long-term, minor, beneficial impacts. Adjacent landowners would experience short-term, negligible, adverse impacts, as well as long-term, minor, beneficial impacts. Cumulative impacts would be long term, moderate, and beneficial.
<b>Monument Operations</b>	The existing administration trailer would continue to provide insufficient space for monument staff and compromise safety resulting in long-term, moderate, adverse impacts. Removal of the Aztec Ruins Trading Post and rehabilitation of the Kiva	The rehabilitated Aztec Ruins and Kiva Trading Posts would result in long-term, moderate, beneficial impacts to monument operations, because of increased space for staff and monument needs. Some short-term, minor, adverse impacts would occur during facility	As in Alternative 2, the rehabilitated Aztec Ruins and Kiva Trading Posts would result in long-term, moderate, beneficial impacts to monument operations, because of increased space for staff and monument needs. The new trail to North Ruin and East Ruin, continued outreach



IMPACT TOPIC	ALTERNATIVE 1: No Action	ALTERNATIVE 2	ALTERNATIVE 3: Preferred Alternative
<b>Monument Operations</b> continued	Trading Post would provide long-term, negligible to minor, beneficial impacts. Staffing levels and efficiency would face long-term, moderate, adverse impacts owing to the demands on staff time to support resource and program needs. Cumulative impacts would be long term, moderate, and adverse.	construction. The new trail to North and East Ruins, continued outreach activities, and increased need for visitor and resource protection, among other needs, would result in long-term, minor, adverse impacts on staff efficiency. Cumulative impacts would be long term, minor, and adverse.	activities, and increased need for visitor and resource protection, among other needs, would result in long-term, minor, adverse impacts on staff efficiency. However, in Alternative 3, the addition of the new cultural activities center would result in long-term, moderate, beneficial impacts on monument operations by improving community relationships, augmenting staff with volunteers, and strengthening visitor services and protection of resources. Cumulative impacts would be long term, minor to moderate, and beneficial.



## CHAPTER 3: AFFECTED ENVIRONMENT

The importance of the resources described in this chapter is recognized by the designation of Aztec Ruins National Monument, along with Chaco Culture National Historical Park, as a World Heritage site.





## IMPACTS TOPICS RETAINED FOR FURTHER ANALYSIS

This chapter describes the existing environment of Aztec Ruins National Monument. The focus is on cultural and natural resources, visitor use and educational opportunities, socioeconomic characteristics, and monument operations that would be affected by the alternatives, should they be implemented. The impact topics to be analyzed in detail were identified in Chapter 1 in “Resources and Values at Stake in the Planning Process” and are described in detail in the first section of this chapter. The next section briefly describes impact topics that are commonly addressed, but are not analyzed in this plan and explains the rationale for this decision. The impact topics described in detail in this chapter establish the baseline for Chapter 4, “Environmental Consequences.”

As noted in Chapter 1, the importance of the resources described in this chapter is recognized by the fact that on December 8, 1987, the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated Aztec Ruins National Monument, along with Chaco Culture National Historical Park, as a World Heritage Site (Lister and Lister 1990, page 189). With this listing, the national monument became one of twenty World Heritage Sites in the United States. Aztec Ruins had already been placed on the National Register of Historic Places (NRHP) as a district in 1966.

## CULTURAL RESOURCES

### ARCHEOLOGICAL RESOURCES

A preliminary archeological reconnaissance of areas surrounding Aztec Ruins was conducted in 1987–88 in conjunction with the 1989 *General Management Plan* (GMP). Since that time, much of this land was acquired for expansion of the national monument. Beginning in 2005, a comprehensive, intensive cultural resource inventory was initiated that has provided complete survey coverage and documentation of all cultural resources. This project has resulted in current records and condition assessments for all archeological sites, along with data entry in the National Park Service Archeological Sites Management Information System computer database. The survey report and all documentation will be provided to the State Historic Preservation Office, with recommendations for management and eligibility to the NRHP.

#### Archeological Sites

The Main Ruins Group dominates the 27-acre area within what were the monument boundaries prior to expansion during the 1990s. This core area includes the both the West Ruin Complex and East Ruin Complex.

##### ***West Ruin Complex***

- West Ruin: the largest of three Chacoan-style “great house” ruins within the Main Ruins Group
- reconstructed Great Kiva
- an excavated tri-wall structure (Hubbard Site)
- cluster of seven houseblocks identified as the West Ruin Annex
- An unexcavated tri-wall structure that lies halfway between West Ruin and East Ruin great houses (Mound F)





*Great Kiva*

### ***East Ruin Complex***

- East Ruin: the second largest of three Chacoan-style great house ruins within the Main Ruins Group
- an unexcavated great kiva
- unexcavated Earl Morris Ruin (a relatively small Chacoan great house ruin)
- an unexcavated tri-wall structure (Mound A)
- series of small structural and trash mounds associated with the East Ruin Great House

The sites within the Main Ruins Group are all included in the listing that designates Aztec Ruins as a World Heritage Site.

Prehistoric and historic to more recent cultural resources were encountered during the archeological survey project. A total of 25 new archeological sites have been documented, and 30 previously recorded sites have been updated within the expanded monument boundaries, producing a total of 55 sites in addition to the Main Ruins Group. These newly identified and updated resources are predominantly prehistoric sites associated with the ancestral Pueblo occupation of the Main Ruins Group. Most of the outlying sites are located on the mesa lands to the north and above the Animas Valley, clustered in the Aztec North Mesa Archeological District.

The outlying ancestral Pueblo sites vary from small residential to large community sites containing residential units in conjunction with public architecture. Those in the Aztec North Mesa Archeological District are densely clustered into a formal cultural landscape that is integrated through a series of ancient roads and smaller satellite features within the Main Ruins



Group. The largest of the sites appears to be the remains of an adobe building that may have been another great house known as North Ruin. The longest known road connected North Ruin to the Main Ruins Group and also extends north into private land outside the monument.

Most prehistoric sites in the Aztec North Mesa Archeological District are located in a tight cluster that was defined as “Residence West” during the Aztec Ruins reconnaissance survey (Stein and McKenna 1988). As the name implies, most of these are habitation sites consisting of small to medium-sized pueblos in the western portion of the mesa top district. However, there also are some specialized sites and prehistoric road segments that integrate this ancestral Pueblo residential area into the larger prehistoric community.

The small residential sites consist of unit pueblos that typically contain a single-story roomblock, kiva, and associated features such as midden areas, artifact scatters, and other related features. The larger pueblo sites contain rubble mounds that comprise the remains of multistory structures, kivas, and great kivas, and associated features. Over half of the prehistoric sites documented during the inventory have been classified as habitation sites. Other sites contain public architecture or served functions related to the community itself. Additional sites include specialized activity sites that served specific functions. Examples of such sites are stone circles and other earthworks that generally seem related to roads.

About 90% of the prehistoric sites contain either the visible remains of architectural features or some evidence suggesting that buried architectural features exist. Isolated artifacts and isolated occurrences are also abundant. Isolated artifacts represent lost or discarded items. Isolated occurrences consist of small scatters of artifacts or poorly defined landscape features. These resources are not significant enough to attain status as an archeological site, but still represent an aspect of the prehistoric occupation. The prehistoric resources represent evidence of occupation mainly in the late Pueblo II to early Pueblo III time periods, A.D. 1000 to 1300.

The historic or more recent site components range from the remains of single-family residences to features representing agricultural or ranching activities. More ephemeral site components also exist, evidenced by historic or recent campsites and trash dumps. The site components in this category characterize the occupation and land use here from the early 1900s up to recent times.

### **West Ruin Backfilling**

The National Park Service identified backfilling (site reburial) as a major stabilization technique at Aztec Ruins in the 1989 GMP. Backfilling helps to support standing walls, control moisture deterioration, and equalize differential fill levels that cause pressure on walls where unexcavated rooms adjoin excavated areas or rooms that still have intact ancient roofs, which precluded natural filling over the centuries. Several small-scale



*Backfilling*

backfilling projects were initiated prior to development of a master *Backfilling Plan for West Ruin* (Trott 1997) that has guided site reburial since that time.



Staff at Work

The master *Backfilling Plan* made it possible to coordinate various preservation projects and to implement a comprehensive strategy that reduced the amount of ancient masonry exposed to the elements. This plan has resulted in the backfilling of well over 100 rooms, kivas, and other architectural spaces in and surrounding West Ruin. The project has resolved some critical preservation problems but also has left some issues unaddressed or beyond the capability of backfilling. These issues do not diminish the success of the West Ruin Backfill Program; such issues were anticipated in the master *Backfilling Plan*. The need to balance backfilling with

limited excavations in some parts of West Ruin was recognized and partially corrected by a 1984 excavation project, but other areas simply could not be backfilled without causing an adverse impact on visitor experience.

Backfilling has been a huge success, and major portions of West Ruin have been completed. Some areas could not be backfilled without eliminating major visitor attractions or filling in roofed rooms that never had been filled in or excavated. Extreme pressure from unexcavated fill on ancient walls that separate areas with differential fill levels has been alleviated through other techniques. Some of these techniques require lowering of fill levels or trenching to install drainage or soil retention structures in the area where higher fill levels is causing pressure or moisture deterioration.

Beginning in 2005, a backfill adjustment project was implemented to correct deficiencies in areas that were backfilled using the initial techniques. Following this preliminary modification of the existing West Ruin Backfill Program, planning was initiated in 2006 for a major Fill Levels Adjustment Project. Archeological testing was conducted in 2008 to facilitate development of a final treatment plan. Proactive treatments to resolve these unequal fill levels will require lowering fill through excavation, installing soil retention structures, belowground drainage pipes, and regrading the ground surface to control drainage and erosion. Soil retention structures and drainage pipes are integral techniques for the West Ruin Backfill Project; however, implementation in high parts of the site included in the Fill Levels Adjustment Project would require trenching, rather than simply installation as backfilling proceeds.

Consultation on a treatment plan for the final, major phase of the Fill Levels Adjustment Project is under way. Implementation will complement the West Ruin Backfill Program to provide a comprehensive long-term solution to differential fill problems. The project work is scheduled to finish up in the next few years, but ongoing maintenance and repairs of the associated infrastructure will require cyclic operations and monitoring.

### Groundwater Issues

Water infiltration into the ruins from neighboring irrigation practices has been a chronic problem since the late 1800s. This infiltration, primarily from the Farmers Ditch and over-irrigating the fields to the north of the original boundary, has caused deterioration of the ruins and has contributed to continued degradation of buried archeological resources.

The destructive effects of groundwater saturation on archeological sites, especially belowground architectural remains and organic and other perishable materials, are well understood as a basic premise in archeology and ruins conservation. Such impacts at Aztec Ruins are acute, owing largely to irrigation of agricultural lands surrounding the main ruins complex. The problem occupied a complete chapter in the monument's *Administrative History* (Lister and Lister 1990, Chapter 12). A major reason that the 1989 GMP recommended acquisition of neighboring lands was so that irrigation practices could be curtailed in areas surrounding the main ruins. Since that time, irrigation of fields to the north has halted, but the orchards to the west are still irrigated, and the Farmers Ditch farther north continues to flow through an unlined canal.

A hydrology project is under way to better understand the sources and movement of groundwater from irrigation and other sources, and treatment recommendations are being developed to counteract these groundwater influxes. Available data indicates that the Farmers Ditch dominates the pattern of groundwater variability.

### CULTURAL LANDSCAPES

Cultural landscapes are geographic areas, including both cultural and natural resources, that are associated with a historic or prehistoric event, activity, or person, or exhibiting other cultural or aesthetic values. Elements that contribute to cultural landscapes include vegetation; structures such as buildings, walls and fences, and habitat and ceremonial ruins; roads and circulation systems; water features; as well as archeological resources directly associated with and related to the cultural landscape and its features. Cultural landscape inventories — which require concurrence by the State Historic Preservation Office — determine if a landscape meets the





significance and integrity criteria to be eligible for the NRHP. The National Park Service has a responsibility to maintain the historic integrity of eligible cultural landscapes and to determine the potential negative effects of management or construction projects on those landscapes. Cultural landscape integrity is maintained by preserving contributing landscape elements.

In 2002, three cultural landscape inventories were completed at Aztec Ruins National Monument. Two of the three landscapes were determined eligible for the NRHP: the Historic District, known as the Historic Designed Landscape, and the Prehistoric Designed Landscape. The Historic Vernacular Landscape (a 19th–20th-century agricultural landscape) was determined ineligible. Concurrence on these landscapes was received from the New Mexico Historic Preservation Officer in July 2005. The cultural landscapes are shown on the Cultural Resources map in Chapter 1. Following is a brief description of each landscape and a list of contributing and noncontributing landscape elements for the two landscapes eligible for the National Register (see Table 7).

### Historic Designed Landscape

The Historic Designed Landscape consists of the 2.35 acres primarily around the visitor center complex. This landscape is also known as the Aztec Ruins Historic District and is significant for its association with archeologist Earl Morris, the history of American archeology, and NPS New Deal Era visitor and administrative facility development, which was located in Morris's former house. As noted in Table 8, this landscape consists of



*Historic Entrance*

the administrative and picnic grounds area identified in the 1942 Master Plan and includes the monument entrance, parking lot, administration building (including the north patio and nearby rock-lined irrigation ditch), and picnic grounds where many of the cottonwood trees were planted by the Civilian Conservation Corps in the 1930s. The period of significance for this 2.35-acre landscape is 1931–1939.

### Prehistoric Designed Landscape

The Prehistoric Designed Landscape encompasses all lands within the monument, excluding the 2.35 acres designated as the Historic Designed Landscape, and relates to the ancient Pueblo community. The northern part of the Prehistoric Designed Landscape is listed on the New Mexico State Listing of Cultural Properties, designated as the Aztec North Mesa Archeological District. Because natural landforms apparently played an important role in the layout and use of the prehistoric landscape, the true limits of the Prehistoric Designed Landscape may extend beyond the authorized boundaries of the monument. The Aztec Ruins Archeological Reconnaissance identified extensive archeological features outside the current monument



*Aerial view of portions of the Prehistoric Designed Landscape*

boundary (Stein and McKenna 1988). It is significant for its association with several phases of the prehistoric Ancestral Pueblo development and settlement in the U.S. Southwest. It includes all precontact and prehistoric ceremonial, settlement, agricultural, and circulation-related archeological resources, including West Ruin, East Ruin, Aztec North, Residence West, and Chacoan road segments. The primary period of significance is A.D. 1100–1300.



*Corral and Eastern Section of North Mesa*

### **Historic Vernacular Landscape**

The Historic Vernacular Landscape consists of 170 acres of agricultural land southeast of the Farmers Ditch, excluding the Historic Designed Landscape, and contains most of Resource Areas #3 through #9 (as shown on the Resource Areas map in Appendix B). Prior to the establishment of Aztec Ruins, the majority of the land in and around the prehistoric ruins was under cultivation.





*Culvert and Building Remnants*

Over the years, the cultivated acreage was reduced because of development of the national monument and the growing town of Aztec.

This landscape was determined ineligible for the NRHP owing to limited integrity; the New Mexico State Historic Preservation Office concurred with this determination in March 2009. There are insufficient material resources, such as historic vegetation and associated buildings and structures, remaining from

the period of significance to be able to represent and tell the story of the themes of agricultural land-use activities that ranged from the early homestead period to the mid-twentieth century. This area includes Farmers Ditch (an eligible site on the NRHP), apple and pear orchards, pasture land, and various deteriorating structural features, such as fences and outbuildings. These latter features are found in the field north of the Main Ruins Group. The historic period for this landscape ranges from the 1890s, when the land was initially patented for agricultural use, into the 1930s with Henry Abram's operation.

Apple and pear orchards that were planted in the 1950s are located north of the administration building and west of the West Ruin. Farmers Ditch and associated lateral ditches also contribute to the overall landscape. The monument no longer irrigates historic pasture land.

### **Relationship between Cultural Landscape Features**

As illustrated on the Cultural Resources map in Chapter 1, the 2.35-acre Historic Designed Landscape that encompasses the visitor center is surrounded by both the Prehistoric and Historic Vernacular Landscapes. Further, the monument-wide Prehistoric Designed Landscape overlaps the area defined as the Historic Vernacular Landscape. Although overlapping, the historic use and features of the Historic Vernacular Landscape, such as the orchards, farmstead, and other structural remains, are noncontributing features to the Prehistoric Designed Landscape. Features from National Park Service development — roads, parking areas, structures, utilities, signs, fences, and work areas — are noncontributing features and uses to both of those cultural landscapes.

**Table 7: Contributing and Noncontributing Landscape Elements of National Register (NRHP) Eligible Landscapes<sup>1</sup>**

HISTORIC DESIGNED LANDSCAPE	PREHISTORIC DESIGNED LANDSCAPE
<b>Contributing Landscape Element</b>	
Native grasses and native cottonwoods in picnic grounds	West Ruin Complex
Native plantings in front of administration building (including sumac, sage)	East Ruin Complex
Morris house/museum/administration building	Other archeological mounds and other archeological resources associated with the Main Ruins Group
Parking lot and central planting island	Aztec North Mesa Archeological District (referred to as the Cobble Terrace in the Cultural Landscape Inventory)
Fish pond (now filled in)	Remnants of prehistoric roads, road alignments
Enclosed north patio area with associated native plantings, walkways, and stone coping	Animas River, Farmer Arroyo, and Estes Arroyo
North patio portal with aspen vigas	Views without modern development
Site furnishings (flagpole and entrance sign)	Mounds and sites to the south of the original location of Ruins Road and additional archeological sites recorded since the Cultural Landscape Inventory was written
Perimeter walls, including entrance signs and pilasters	Native vegetation
Picnic grounds	
CSA-era drainage tiles and "Rock Lined Irrigation Ditch"	
Orientation of entrance in relation to Ruins Road	
Use of local materials in construction, including adobe brick and cobblestones	
National Park Service rustic design style	
<b>Noncontributing Landscape Element</b>	
Lawn in administration building patio and entrance	Altered density and distribution of native vegetation
Nonnative shrubs in front of visitor center and in parking lot island	Preservation and maintenance work and staging areas
Elm trees in picnic grounds and elsewhere within the district	19th- and 20th-century historic uses and features, National Park Service development
Accessible ramp at front of visitor center	
<b>Noncontributing-Compatible Landscape Element</b>	
Rocky mountain junipers and cottonwoods in front of administration building	
Self-guided trail system established in 1954	

<sup>1</sup> The Historic Vernacular Landscape is not included because it is not eligible for the NRHP.

## NATURAL RESOURCES

### VEGETATION

Aztec Ruins National Monument lies within the Upper Sonoran life zone. Almost 300 plant species have been documented in the monument, many of which are nonnative (Rink and Cully 2008).

Vegetation types found within the boundaries of the monument include riparian, piñon-juniper woodlands, grasslands, old agricultural fields or pastures, and restoration areas. Characteristic vegetation found throughout upland areas within the monument includes sagebrush (*Artemisia* spp.), four-wing saltbush (*Atriplex canescens*), rabbitbrush (*Chrysothamnus nauseosus*), black greasewood (*Sarcobatus vermiculatus*), yucca (*Yucca* spp.), piñon pine (*Pinus edulis*), and juniper (*Juniperus monosperma*). Native grasses can be found mainly on the north terrace among the piñon-juniper woodlands and include blue grama (*Bouteloua gracilis*), prairie Junegrass (*Koeleria cristata*), alkali sacaton (*Sporobolus airoides*), galleta (*Hilaria jamesii*), and Indian ricegrass (*Oryzopsis hymenoides*).

Riparian and wetland communities border the riverbanks and ditches in the lowest portions of the monument. These communities are dominated by willow (*Salix* spp.), cottonwood (*Populus fremontii* Wats.), box elder (*Acer negundo*), and cattail (*Typha* sp.). Russian olive (*Eleagnus angustifolia*) and tamarisk or saltcedar (*Tamarix gallica*) are two exotic tree species that are common along the river.

Exotic grasses are dominant around the old pasture site, and other exotic and noxious weeds are interspersed throughout the monument. Common exotic species present within the park include tall fescue (*Festuca arundinacea*), Russian thistle (*Salsola iberica*), cheatgrass (*Bromus tectorum*), stork's bill, (*Erodium cicutarium*), common mallow (*Malva neglecta*), smooth brome (*Bromus inermis*), dock (*Rumex* spp.), tumble mustard (*Sisymbrium altissimum*), and goathead (*Tribulus terrestris*). Species designated noxious by the State of New Mexico that are found within the monument include Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), Scotch thistle (*Onopordum acanthium*), field bindweed (*Convolvulus arvensis*), bull thistle (*Cirsium vulgare*), whitetop (*Cardaria draba*), Russian olive, saltcedar, and Siberian elm (*Ulmus pumila*) (USGS 2004).

The apple and pear orchards west of the West Ruin are approximately three acres in size. They are in less than ideal condition and currently receive minimal maintenance, which includes occasional irrigation, some pruning, and removal of fallen branches to eliminate unsightliness and safety hazards. Another orchard, which is less than one acre and relatively sparse in number of trees, is located southeast of the maintenance compound across Ruins Road. In addition, there are a few other fruit trees scattered throughout the monument. As noted under "Cultural Landscapes," these orchards do not contribute to the Prehistoric Designed Landscape, the predominant and NRHP-eligible landscape within the monument.

The historic use of monument land for agricultural and grazing purposes has greatly contributed to introduction and establishment of numerous nonnative plant species. In addition, an existing trailer park, a subdivision south of the monument, a new subdivision being developed north and west of the monument, and gas wells are all potential activities that encourage nonnative plant species introduction and establishment within monument boundaries. There were 57 nonnative species within the approximately 112 hectares (277 acres) sampled in a 2008 nonnative plant inventory (Korb 2008). The highest numbers of nonnative plant species were found in the

old fields and previously cultivated lands, along the Farmers Ditch, in the orchards, and in the riparian floodplains along the Animas River.

## WILDLIFE

Habitat that supports wildlife within the monument consists of riparian and upland vegetation communities, including grassy fields, desert scrub, and orchards. Wildlife surveys conducted in 2001 and 2002, along with supplemental sightings, detected 68 bird species, 26 mammal species, 2 amphibian species, and 9 reptile species within the monument boundary.



*Mule Deer in the Orchard*

Mammals likely to occur in the monument on a regular basis include coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), skunks, squirrels, many species of mice, and seven species of bats. These species occur throughout the monument, but biologists found that the highest number of terrestrial mammals occurred in the piñon-juniper woodland on the mesa top. Bats were found predominately along the Farmers Ditch and at the Great Kiva, where five species were documented.

During the 2001 surveys, biologists captured, observed, or documented previous sightings of the following 19 species of mammals (USGS 2003): Western small-footed myotis (*Myotis ciliolabrum melanorhinus*), Yuma myotis (*Myotis yumanensis yumanensis*), big brown bat (*Eptesicus fuscus*), spotted bat (*Euderma maculatum*), pallid bat (*Antrozous pallidus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), big free-tailed bat (*Nyctinomops macrotis*), desert cottontail (*Sylvilagus audubonii*), black-tailed jack rabbit (*Lepus californicus*), silky pocket mouse (*Perognathus flavus*), western harvest mouse, brush mouse (*Peromyscus boylii*), deer mouse (*Peromyscus maniculatus*), pinon mouse (*Peromyscus truei*), northern grasshopper mouse (*Onychomys leucogaster*), house mouse, white footed mouse (*Peromyscus leucopus*), western spotted skunk (*Spilogale gracilis*), and mule deer. Additional species identified by monument staff or biologists include: rock squirrel



(*Spermophilus variegates*), Gunnison's prairie dog (*Cynomys gunnisoni*), Botta's pocket gopher (*Thomomys boffae*), muskrat (*Ondatra zibethicus*), porcupine (*Erethizon dorsatum*), coyote, red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*), and American black bear (*Ursus Americana*) (an accidental sighting.)

The riparian and piñon-juniper woodland areas, along with patches of once-cultivated grassy fields, orchards, and desert scrub, all provide diverse habitats for avian species within the monument. Ornithologists conducted bird inventories in the monument in 2001 and 2002 (USGS 2002a). In addition, a multipark grant from the National Park Foundation and Hawks Aloft provided for a survey in 2002 of neo-tropical migrant breeding birds. Prior to these recent inventories, volunteers from the local Audubon Society had compiled a bird checklist for the monument that listed 74 species.

Common avian species in upland areas of the monument include black-billed magpie (*Pica pica*), blue grosbeak (*Guiraca caerulea*), house sparrow (*Passer domesticus*), Gambel's quail (*Callipepla gambelii*), western meadowlark (*Sturnella neglecta*), house finch (*Carpodacus mexicanus*), Bullock's oriole (*Icterus bullockii*), hummingbirds, starlings (*Sturnus vulgaris*), and mourning dove (*Zenaidura macroura*). In addition to the above species, the following birds are likely to be found in riparian habitats within the monument: black-headed grosbeak (*Pheucticus melanocephalus*), American robin (*Turdus migratorius*), Canada goose (*Branta canadensis*), red-winged blackbird (*Agelaius phoeniceus*), killdeer (*Charadrius vociferous*), cliff swallow (*Hirundo pyrrhonota*), and lesser goldfinch (*Carduelis psaltria*).

Reptiles and amphibians identified in the 2001 and 2002 surveys included Woodhouse's toad, (*Bufo woodhousii*), striped chorus frog (*Pseudacris triseriata*), common collared lizard (*Crotaphytus collaris*), sagebrush lizard (*Sceloporus graciosus*), eastern fence lizard (*Sceloporus undulates*), western whiptail (*Cnemidophorus tigris*), plateau striped whiptail (*Cnemidophorus velox*), striped whipsnake (*Masticophis taeniatus*), gopher snake (*Pituophis melanoleucus*), western terrestrial garter snake (*Thamnophis elegans*), and western rattlesnake (*Crotalus viridis*) (USGS 2002b).

Reptile and amphibian diversity was expected to be higher within the monument and some species expected to be present were not found. The surveys were conducted during severe drought conditions, and many common amphibian species may not have been found because of the dry conditions. The recently acquired monument property to the north of the Farmers Ditch may contain a number of snake species (e.g., night snake [*Hypsiglena torquata*], hognose snake [*Heterodon nasicus*], common kingsnake [*Lampropeltis getula*], and glossy snake [*Arizona elegans*]) that have not yet been found.

### **SPECIAL STATUS SPECIES**

Consultation with the U.S. Fish and Wildlife Service in 2003, and again in 2006, resulted in a list of species with federal status that are of issue in San Juan County. This list was updated in 2009 by consulting the U.S. Fish and Wildlife Service New Mexico Ecological Services Field Office Web site and the New Mexico Game and Fish Department's Biota Information System for listed and sensitive species in San Juan County, New Mexico. Further research based on the presence of potential habitat and surveys in 2000 and 2001 for birds, mammals, reptiles, amphibians, and plants, as outlined in "Wildlife" above, narrowed the list of species with potential to occur within the monument to those species shown in Table 8.



**Table 8. Species Reported Or With Potential To Occur Within Aztec Ruins National Monument**

COMMON NAME	SCIENTIFIC NAME	REPORTED (Y/N)	STATUS
Bald Eagle	<i>Haliaeetus leucocephalus alascanus</i>	Y	FD/ST
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Y	FC/SS
Spotted bat	<i>Euderma maculatum</i>	Y	ST
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Y	SS
Little brown bat	<i>Myotis lucifugus</i>	Y	SS
Yuma myotis	<i>Myotis yumanensis</i>	Y	SS
Gunnison's prairie dog	<i>Cynomys gunnisoni</i>	Y	SS
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Y	SS
Western spotted skunk	<i>Spilogale gracilis</i>	Y	SS
Red fox	<i>Vulpes vulpes</i>	Y	SS
Gray vireo	<i>Vireo vicinior</i>	N	SS
Loggerhead shrike	<i>Lanius ludovicianus</i>	N	SS
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	N	FE/SE
American peregrine falcon	<i>Falco peregrinus anatum</i>	N	FD/FSC/ST
Black tern	<i>Chlidonias niger</i>	N	FSC
Western burrowing owl	<i>Athene cunicularia hypugea</i>	N	FSC

FT/E = Federal Threatened/Endangered; FSC = Federal Species of Concern; FC = Federal Candidate Species; FD = Federally Delisted; SE = State Endangered; ST = State Threatened; SS = State Sensitive

The main habitat areas for special status species within and adjacent to the monument include the Farmers Ditch and the Animas River. Bats are likely to feed over both main water sources but even more so along the lateral ditches, whereas bald eagle, southwestern willow flycatcher, black tern, and yellow-billed cuckoo potentially could occur in the riparian zone of the Animas River. Casual use by the peregrine falcon is possible.

Bald eagles have been sighted migrating through the monument and occasionally roosting in tall cottonwoods near the Animas River within the monument. The bald eagle is now listed by the state as threatened, but was federally delisted in 2007 and will be monitored at 5-year intervals. The yellow-billed cuckoo was detected in the Animas River riparian area during a bird survey in 2001. Suitable habitat for the southwestern willow flycatcher was identified adjacent to the Animas River, but the species has not been confirmed within the vicinity. Piñon-juniper woodlands within the monument also provides habitat for the gray vireo and the loggerhead shrike, both New Mexico sensitive species, but they have not been observed.

Several bat species that occur within the monument are New Mexico sensitive species: western small-footed myotis, Yuma myotis bat, and big free-tailed bat. The spotted bat is listed as a state threatened species. The spotted bat was audibly detected within the monument during the wildlife survey in 2002. The western small-footed myotis and the little brown bat were captured within the monument during the bat survey. The Yuma myotis bat and the big free-tailed bat were detected by echo location but not by capture. The spotted and big free-tailed bats are most likely long-distance travelers into the monument from their roosting areas elsewhere. A nesting colony of the pallid bat is present in the supporting roof beams of the reconstructed Great Kiva.

Although in the past Gunnison's prairie dog colonies have been identified within the monument boundary, none are known to exist at this time. Prairie dog populations are extremely dynamic and characterized by change, both in population size and location. Because suitable habitat for prairie dogs is found in the monument, it is probable that a colony could return during the life of this plan. A prairie dog colony would also provide suitable habitat for the western burrowing owl, although no sightings have been reported in the monument.

## VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES

The primary visitor experience at Aztec Ruins is to walk along the interpretive trail through the West Ruin and explore the extant structures from the Pueblo period of occupation. As visitors move along the existing West Ruin trail, there are opportunities to take in views not only of scenery within the monument, but of surrounding areas as well. One of the stops on the West Ruin trail gives visitors a view of the East Ruin. A portion of the trail travels to an outlying site, the Hubbard Site, just north of the West Ruin. From this vantage, visitors have a view of the former agricultural fields to the north and the North Mesa (also known as the Aztec North Mesa Archeological District). Views of surrounding development occur in several locations throughout the monument.

Other areas of the monument are closed to visitor access unless accompanied by monument staff. Occasionally, monument staff conducts guided tours to the East Ruin and North Mesa. From the North Mesa, visitors experience a sweeping view of the Animas River valley, the cultural mounds and ruins in the core area of the monument, and an impressive view north toward the San Juan Mountains. This offers a more comprehensive perspective of the ancestral Pueblo people and opportunities to explore monument themes related to the larger community, cultural landscapes,



*Visitors Exploring Hubbard Site*

human interaction with the environment, and changing perspectives and interpretations of the people.

The visitor center is the primary visitor-use facility within the monument and currently serves approximately 40,000 visitors annually (39,538 in 2007).

Interpretation and educational opportunities include exhibits and video

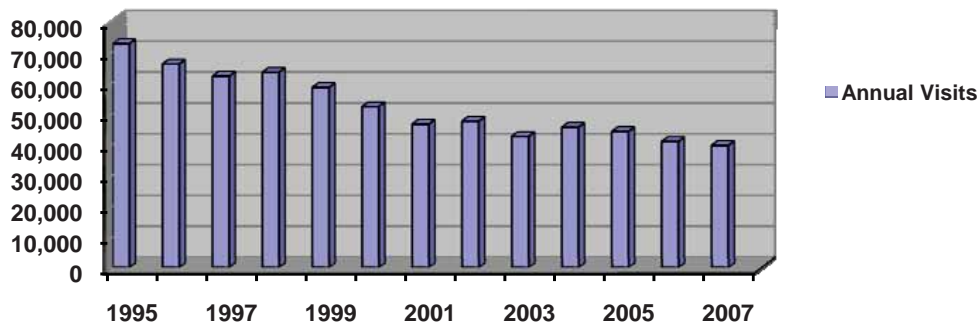


*Inside Kiva*

presentations. The present Mission 66-era exhibits were designed and constructed in the early 1960s. The exhibits are in need of refurbishing, as the level of deterioration is unacceptably high. A recent conservator's collection condition survey cites the unacceptably high level of deterioration in the present exhibits; losses to the collection are cumulative and irreversible. There is also a need to add stories and reevaluate cultural perspective in the exhibits, as well as enhance visitor understanding with updated exhibits.

The stories told at Aztec Ruins come from the primary interpretive themes listed in Chapter 1. Interpretive programs, including the trail and guidebook, guided tours, audio and visual exhibits, and museum displays, assist visitors in understanding the relationship between the ruins and the culture of the Pueblo builders. Visitors have the opportunity to acquire a greater understanding and appreciation of the larger regional cultural setting and contrast the past with the modern society of Aztec. In addition to providing educational opportunities within the monument, interpretive staff participates in off-site programs.

A year-long visitor survey was conducted from March 2003 to February 2004 to gather demographic information about visitors to the national monument and to learn about their experiences at the monument and their opinions about how it is managed. The survey showed that visitor use is currently focused on the visitor center and the self-guided interpretive trail through the West Ruin, located just north of the visitor center. The majority of visitors spend 1 to 2 hours touring the visitor center, viewing exhibits, completing the West Ruin trail, and browsing the bookstore. Visitor survey results indicate an overall satisfaction with the management and conditions at the monument. Many visitors expressed a desire for more opportunities to view a larger portion of the prehistoric community, as well as the surrounding natural environment. Many visitors also expressed a desire for more walking trails and opportunities for self-guided and guided tours of unexcavated ruins. Crowding does not appear to be a problem in the monument according to the majority of visitors.



**Figure 1. Annual Visits from 1995 through 2007**

Visitation statistics from the National Park Service Social Science Program, Public Use Statistics Office show that there is a trend toward decreased visitation at Aztec Ruins from the years 1995 to 2007 (see Figure 1). In 2007, visitation was 39,538; whereas, in 1995, it was 72,499. Weather and factors of state and national economic and political conditions can affect visitation levels.

## **SOCIOECONOMIC ENVIRONMENT**

San Juan County is approximately 5,500 square miles and is located in the extreme northwest corner of New Mexico. It is bordered by Arizona, Utah, and Colorado, as well as Rio Arriba, Sandoval, and McKinley counties in New Mexico. The monument is almost entirely surrounded by the city of Aztec. The three cities that are in close proximity to Aztec are Farmington (14.3 miles southwest), Flora Vista (6.2 miles southwest), and Bloomfield (8.0 miles south). The majority of the land within San Juan County is owned by American Indians (1,979,813 acres) and lies within a number of American Indian reservations (1,129,998 acres). In addition, the Navajo Nation Reservation and the Jicarilla Reservation lie adjacent to San Juan County. Chaco Culture National Historical Park, Salmon Ruins, and Mesa Verde National Park are all located within 85 miles of Aztec Ruins.

San Juan County's population was 113,801 in 2000 (U.S. Census Bureau 2008) and is estimated to increase to 133,170 by 2010 and 151,501 by 2025 (BBER 2008). Population increased 24.2% from 1990 (91,605) to 2000 (113,801), and the county was the second-fastest growing in the State of New Mexico during the years 2000 to 2003. The town of Aztec had a population of 6,378 in 2000 that was estimated to increase to 6,810 by 2003 (ePodunk 2008). Aztec is in close proximity to Farmington and Bloomfield, New Mexico, and to Durango, Colorado. Farmington is the largest city in the county, with a population of approximately 40,000, and provides the main shopping destination for residents within a 150-mile radius. San Juan County is larger in population than the three neighboring New Mexico counties (U.S. Census Bureau 2000): Rio Arriba (population 41,190), Mc Kinley (population 74,798), and Sandoval (population 89,908).

## **LOCAL ECONOMY**

With water from the Animas River, the City of Aztec grew, based on the development of rural ranching and is reflected in a farming way of life. During the last 50 years, farming and ranching have declined, while the number of people in the area has increased. Between 1990 and 2000, the City of Aztec grew 10.1%, whereas neighboring rural areas grew by almost 65%. The oil and gas industry is now the dominant employer.



According to 2000 census data for the town of Aztec, the median household income is \$33,110 and the median house value is \$91,100. The primary industries providing employment in San Juan County are educational, health, and social services (20.7%); retail trade (13.2%); and agriculture, forestry, fishing and hunting, and mining (10.8%). The local government and retail trade are the primary employers for this county. A diverse range of industries provide employment in Aztec that include education, health, social services, retail trade, agriculture, forestry, fishing, hunting, mining, arts, entertainment, recreation, accommodation, and food services. The San Juan County unemployment rate was 6.0% in March 2005 down from 6.2% in March 2004 (New Mexico Department of Labor 2008).

In an attempt to diversify its economy, San Juan County has focused on tourism and recreation opportunities in recent years (Wall 2000). Tourism in the Four Corners area was up by about 19% in 2004. The county receives most of its visitors to such popular attractions as Chaco Canyon, the Aztec Ruins, and Shiprock in the spring. Many visitors to the Grand Canyon in Arizona also visit Farmington. Visitors to Aztec Ruins also visited other national monuments and parks, including Salmon Ruins (20%), Chaco Culture National Historic Park (36%), and Mesa Verde (53%).

These tourist visits to Aztec Ruins and other locations contribute dollars to the local and regional economies. An NPS 2003 visitor spending and economic analysis for Aztec Ruins (visitation was roughly the same as in 2007) estimated that 7% of all recreation visits were local residents on day trips, 64% were visitors on day trips from outside the local area, 17% were visitors on overnight trips staying in lodges, motels/hotels, or bed and breakfasts in the local area, and 12% were camping. (These numbers correlate with the 2003 visitor survey results that indicated visitors stayed in the following locations the night before visiting Aztec Ruins: 8% in Aztec, 63% within 40 miles of Aztec, and 29% farther than 40 miles from Aztec.) On average, visitors spent \$78 per party per day in the local area. Total visitor spending was \$1.16 million in 2003.

Business sales, personal income from wages and salaries and employee benefits, and the number of jobs in the region are directly affected by visitor spending. The \$1.16 million spent by visitors to Aztec Ruins resulted in \$920,000 in sales, \$340,000 in personal income, and 23 jobs. The largest direct effects were \$220,000 in the hotel sector, \$270,000 in food and drinking places, \$150,000 in amusements, and \$160,000 in retail trade. Because visitor spending circulated throughout the local economy, secondary effects created an additional \$150,000 in personal income and 6 jobs (NPS 2003). Updated figures for 2006 showed an approximate 8% to 10% increase in visitor spending (\$1.3 million) and jobs (25) over 2003 (Stynes 2007).

## **ADJACENT LAND USE**

Private land development adjacent to the boundaries of the monument has produced a mixed community of mobile homes and permanent residences and will likely continue to grow. Development plans have been approved for a 400–600 unit residential development on the north mesa, adjacent to the monument boundary.

## **MONUMENT OPERATIONS**

### **FACILITIES**

Facilities located at Aztec Ruins include two former trading posts, a visitor center, maintenance buildings, and a trailer used for administrative purposes. Square footage and current use of each facility is described in Table 9.



**Table 9. Existing Facilities at Aztec Ruins**

BUILDING NAME	SQUARE FOOTAGE	CURRENT USE
Aztec Ruins Trading Post	2,713	Vacant
Kiva Trading Post	1,449	Temporary staff offices and cultural resource staging area
Visitor Center	1,600	Audio-visual, sales, offices, museum, interpretive exhibits, bookstore, public restrooms, and storage
Maintenance and Preservation Complex — Office Building	1,800	Office, kitchen, meeting room, bathroom
Maintenance and Preservation Complex — Shops	1,875	Storage and use of equipment and tools
Preservation Barn	400	Storage of preservation materials
Administration Trailer	1,972	Offices, kitchen, bathroom

### Monument Headquarters

Currently, monument headquarters and administrative offices are located within a doublewide mobile home structure in the central/south portion of the monument. Intended to be a temporary situation, there are concerns regarding the visual impact of the trailer on the landscape. Office space is tight within the trailer, and working conditions are less than ideal.

### Maintenance Complex

Maintenance and cultural resource personnel are stationed in the maintenance compound. Offices for such staff are located in a Mission 66-era building within the monument boundary. This structure includes the only meeting room within the monument. Other buildings within the compound include maintenance shops and a preservation barn, where materials and equipment are stored and used.



*Administration Trailer*

### Visitor Center

The visitor center is located in the original home of Earl Morris, the early excavator and caretaker of the ruins. The home was built in the early 1920s and early on housed museum space and was the point of entry for visitation to the ruins. The most recent remodel of the structure occurred in 2009. The building now provides office space in addition to the interpretive exhibits and a bookstore.

Parking for visitors is located at the visitor center as well as next door at the administration trailer. Parking lots are not usually filled to capacity.

## Trading Posts

The Aztec Ruins Trading Post and the Kiva Trading Post are located within monument boundaries and in the ownership of the National Park Service. Currently, the Aztec Ruins Trading Post is empty and in disrepair. Although the Kiva Trading Post is in need of rehabilitation, it is currently being used by cultural resource personnel as temporary offices and as a staging area for field activities.

Aztec Ruins Trading Post was originally opened about 1940 by Ernest Josey and was named the Westward Ho Curio Store. It opened in an existing building that was nearly half the size it is now. Over the years it was expanded and remodeled as it changed ownership and names. The current structure consists of an original concrete block/

stucco building, which has had several additions constructed to the west and south sides, to include coverage of the front two-thirds of the entire facility with a pitched roof. The original construction of these building additions was inadequate by current building code standards.

The Kiva Trading Post was originally opened in 1964 by W. P. Shyrock and was named the Kiva Kurio Shop. It has also been expanded and remodeled over the years. The gross area of the Kiva Trading Post, including covered porches on the north and west sides, is approximately 2,278 square feet. The facility consists of an original concrete block/stucco building with two additions constructed on the south side.



*1940's Aztec Ruins Trading Post*



*Current Aztec Ruins Trading Post*



*Kiva Trading Post*

## **STAFF HOUSING**

No staff housing is currently located within the boundaries of the monument.

## **OIL AND GAS OPERATIONS**

Three gas wells are active in Aztec Ruins National Monument: Bobbie Herrera No. 1 well, Fee 4-A well, and Fee 9Y well. XTO Energy operates the Fee 4-A and the Fee 9Y wells in the monument. Manana Gas, Inc., operates the Bobbie Herrera No. 1 well. These wells were drilled through multiple producing zones and will likely produce gas for 50 or more years. Management of these existing wells was discussed in Chapter 1 under “Special Mandates and Administrative Commitments” and again in Chapter 2 under “Nonfederal Subsurface Rights.” The monument also contains two active pipelines and two abandoned wells: Rhods Abram No. 1 and Moya-Hubbard No. 1. Existing and abandoned oil and gas operations impact approximately 4 acres within the monument.

## **STAFFING AND ADMINISTRATIVE EFFICIENCY**

Currently, there are 16 full-time employees at the monument. Each year, costs of operations increase at Aztec Ruins. The increase in acreage of the monument in 1988 resulted in an increase of resources to manage, but employee resources have not increased accordingly. Needs have been identified in all aspects of monument operations, including management and administration, resource protection and management, science and research, and interpretive programs. The inadequate infrastructure and workspace for administrative and other staff pose challenges to monument operations. The empty Aztec Ruins Trading Post requires efforts to address security and maintenance issues.

## IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

The following impact topics are not analyzed in detail because the resource does not occur in the national monument or because implementing the alternatives would result in negligible to minor impacts to that resource. An impact of negligible or minor intensity may range from “barely perceptible and not measurable” to one that is “measurable or perceptible, but is slight and localized and would result in a limited alternation.” The rationale for dismissing these topics is stated for each resource.

### CULTURAL RESOURCES

#### HISTORIC STRUCTURES

Historic resources are landscapes, buildings, structures, and other facilities at Aztec Ruins National Monument that are at least 50 years old. A subset of historic resources is historic structures, which are those that are eligible or already listed on the NRHP. Historic structures at Aztec Ruins include the visitor center (Administration Building Museum), the Farmers Ditch, and the Great Kiva. The Great Kiva is both a historic and an archeological resource that is discussed under “Archeological Resources.”

The visitor center occupies a portion of the historic home/office of Earl Morris, who was the archeologist who excavated Aztec Ruins during the early 20th century. It is on the NRHP (listed as the Aztec Ruins Administration Building Museum on the National Register form) and the List of Classified Structures. Morris built the structure between 1919 and 1925 of material reclaimed from excavations at the West Ruin. The building was later expanded to serve as a combined visitor center and museum.

Farmers Ditch was constructed in 1892. Approximately 4,000 feet (1,219 meters) of the ditch is included within the national monument. For many years Farmers Ditch primarily irrigated agricultural fields; today, the portion of Farmers Ditch that runs through the monument is a source of municipal water to the City of Farmington and a source of irrigation water for the Aztec area, in addition to irrigating orchard trees and the picnic area within the monument. The ditch underwent modification (i.e., widening and deepening) during the 1960s in connection with the construction of Farmington Lake.

The Aztec Ruins Trading Post and Kiva Trading Post are not considered historic structures in this GMP because neither building is eligible for the NRHP. The Aztec Ruins Trading Post was assessed for eligibility, but determined to be ineligible because of limited integrity. The Kiva Trading Post is not yet of age (50 years) to qualify for the NRHP, but most likely lacks the necessary integrity. Both these structures were discussed in detail under “Monument Operations” in this chapter.

Under all alternatives, annual maintenance to the Farmers Ditch by the Lower Animas Water Users Association would be ongoing, resulting in short-term, negligible, adverse impacts. In Alternatives 2 and 3, construction of the new interpretive trail would include bridges across the Farmers Ditch, which could result in some long-term, minor, adverse impacts to the integrity of the historic ditch. However, any potential impacts would be mitigated through consultation with the New Mexico State Historic Preservation Officer during all phases of trail design. Removal



of the pear and apple orchards would have long-term, minor, beneficial impacts on subsurface architectural features because of the elimination of groundwater saturation resulting from irrigation practices related to the orchards. Because all potential impacts to historic structures would be negligible to minor and mitigated through consultation, this topic was dismissed from further analysis in this document.

### **ETHNOGRAPHIC RESOURCES**

Pueblo peoples living in Arizona and New Mexico are the descendants of the ancestral Pueblo. A cultural affiliations study was undertaken in the 1990s by Drs. George S. Esber and Adolph M. Greenberg, with the assistance of Edith P. Morgan, to determine which contemporary communities hold a traditional association with the resources of Aztec Ruins National Monument. The study suggests that Keresan speaking people, especially Western Keresan (Zia, Santa Ana, Acoma, Laguna, Cochiti, Santo Domingo, San Felipe) along with the Towa-speaking Jemez, are more likely to have closer ties to Aztec Ruins than Tewa and Tiwa speaking people. Hopi and Zuni have also claimed ties and interest in Aztec Ruins. The literature search completed during the study also suggested contact with the Navajo Nation. Tribes having a geographic, but no documented, relationship to Aztec Ruins include the Apache and the Ute. Nearby tribes that have no documented or geographic relationship to Aztec Ruins include the Arapaho and the Comanche.

Ultimately, the study recommended that an ethnographic overview and assessment be undertaken to provide more information on which tribes to maintain a consultation relationship with. Although affiliation information is scant, most of the tribes refer to Aztec Ruins as a sacred homeland for their ancestors and spiritual beings, and it remains important in their history and spiritual life today. Thus, pending more study, the entire site is considered an important ethnographic resource for spiritual use for all Pueblo and Navajo peoples.

To ensure that continued access to ethnographic resources is preserved, the National Park Service contacted all American Indian tribes traditionally associated with the monument, via letter during scoping activities in 2003. Some tribes participated in scoping meetings and provided feedback regarding the importance of monument resources (see Chapter 5 “Consultation and Coordination”). No measurable impacts to ethnographic resources are expected based on their comments. Further, the national monument is committed to ongoing communication with affiliated American Indian tribes regarding this general management plan to ensure continued access to and protection of ethnographic resources. Therefore, this impact topic was dismissed from further analysis in this document.

### **INDIAN TRUST RESOURCES**

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of the 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 Indians and Alaska Native tribes. The lands that make up Aztec Ruins National Monument are not held in trust by the secretary of the Interior for the benefit of Indians owing to their status as Indians. Therefore, Indian trust resources were dismissed from further analysis in this document.



## MUSEUM COLLECTIONS

According to Director's Order 24, Museum Collections, the National Park Service requires the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material). Currently, Aztec Ruins National Monument houses a large number of archeological objects in a room just off of the library in the visitor center. Roughly half of these items and other small objects housed in another location will be moved to the Hibben Center, a permanent repository that is located on the University of New Mexico campus. Archeological objects housed at the Western Archeological and Conservation Center and the National Park Service Santa Fe support office are also in the process of being moved to the Hibben Center. Archives and the history collection are to be stored at the Western Archeological and Conservation Center. The natural history collection is to be housed at the Northern Arizona Facility.

All museum collections would be managed according to the monument's *Collections Management Plan* (1980). Because the vast majority of these museum collections would continue to be offsite and the visitor center would not be affected by construction activities proposed in the alternatives, there would be no impact to the monument's existing museum collections. Should actions in Alternative 2 or 3 result in the collection of additional artifacts, appropriate funding and plans to catalog, store, and curate the collections in perpetuity that are consistent with the *Collections Management Plan* and all applicable laws and regulations would be included as part of the action. Therefore, museum collections were dismissed from further analysis.

## NATURAL RESOURCES

### 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, and the National Park Service Management Policies 2006 address the need to analyze air quality during park planning. Aztec Ruins was designated Class II under the 1963 Clean Air Act, as amended. A Class II designation allows for moderate deterioration of air quality within national ambient air quality standards. The Clean Air Act also provides that the federal land manager has an affirmative responsibility to protect air quality-related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts. Section 118 of the Clean Air Act requires the monument to meet all federal, state, and local air pollution standards. Section 176 (c) requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards.

Air quality in Aztec Ruins is affected by a variety of air pollution sources, including vehicle emissions and industrial uses, such as oil and gas wells, and is influenced by factors such as precipitation. Construction activities proposed in the alternatives could result in some increases in emission related to construction vehicles and equipment; however, because construction would be limited to several small facilities and would be short term, impacts to air quality from emission increases would be negligible to minor. Some increased visitation could also occur in response to new trails, improved interpretive opportunities, and increased partnerships. Although potentially long term, these increases would not be substantial and would result in negligible increases in vehicle emissions. Therefore, air quality was dismissed from further analysis in this document.

## WATER RESOURCES

National Park Service policies require protection of water quality consistent with the Clean Water Act (1948 and as amended in 1956, 1972, and 1977), a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to prevent, control, and abate water pollution. The U.S. Environmental Protection Agency has responsibility for oversight and review of permits and actions that affect waters of the United States.

The proposed project area contains a community ditch, known as the Farmers Ditch, which flows through the national monument to a nearby private reservoir. Additionally, the Animas River forms the eastern boundary of the monument.

Proposed construction of new structures and the removal of existing structures would occur within existing developed areas and away from known water resources. The footprint related to new construction in Alternatives 2 and 3 would only marginally increase because old add-on construction to existing buildings would be removed and replaced by new construction. New trail construction would bridge over the Farmers Ditch and provide views of the Animas River, but proposed mitigation would prevent any impacts to water quality. Suggested mitigation measures (listed in Chapter 2, "Alternatives") include standard erosion and sediment control measures, as well as minimizing the area of disturbance. With mitigation, resulting impacts to water resources would be negligible; therefore, water resources was dismissed from further analysis in this document.

## FLOODPLAINS AND WETLANDS

Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge of dredged or fill material into U.S. waters. 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 NPS *Management Policies 2006* and Director's Orders 77-1 and 77-2 provide direction on developments proposed in floodplains and wetlands. At Aztec Ruins, no jurisdictional wetlands would be disturbed as a result of implementing the preferred alternative. Additionally, no actions identified in the alternatives are proposed in the 100-year floodplain that borders the Animas River and is located on the eastern side of Ruins Road. Because there would be no effects to floodplains or wetlands, these impact topics were dismissed from further analysis in this document.

## TOPOGRAPHY, GEOLOGY, AND SOILS

According to the NPS *Management Policies 2006*, the National Park Service will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue. These policies also state that soil resources of the monument will be preserved and, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil will be prevented.

Aztec Ruins National Monument is located in the Animas River valley, which is significant as the former site of the largest glacier bordering the Colorado Plateau. This small ice cap, called the Animas Glacier, was situated in the San Juan Mountains. Aztec Ruins lies in the outwash of this glacier. Investigators have identified 34 existing terrace levels in the Animas valley between Durango and Farmington; three of these occur in Aztec Ruins National Monument. These flat alluvial surfaces step up in elevation from the modern floodplain to old, "stranded" floodplains 2,165 feet above the valley floor. Geologically speaking, terraces are significant because they

record entire glacial-interglacial cycles (NPS 2007). Actions proposed in the alternatives would have no impact on these important geologic and topographic features.

As noted under “Water Resources,” new facility construction in Alternatives 2 and 3 would generally be limited to disturbed areas and would require only limited excavation that could potentially displace and disturb soils. New trail construction would disturb some soils along its length in the vicinity of the North and East Ruins. Soils may also be disturbed and compacted on a temporary basis in the locations used to access the construction site. Construction staging would also occur in a previously disturbed site.

Because there would be no topographic or geologic impacts and any potential impacts on soil would be only short-term negligible to minor because of mitigation, this topic is dismissed from further analysis in this document.

## **NIGHT SKY**

In accordance with NPS *Management Policies* 2006, the National Park Service is obligated to preserve, to the greatest extent possible, the natural lightscapes of park units such as Aztec Ruins National Monument. To mitigate the effect of surrounding artificial lighting on the monument’s natural night skies, the National Park Service would continue in all alternatives to seek the cooperation of monument visitors, neighbors, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the monument. Proposed new building and trail construction in Alternatives 2 and 3 could also result in additional lighting within the monument. To minimize any potential impacts to night skies over the monument, construction activities would only occur during daylight hours. Permanent lighting would be provided only where necessary for mobility or safety of visitors, and the minimum amount of lighting would be used in new developed areas. Because of this mitigation, only negligible impacts would occur on the national monument’s night sky; therefore, this impact topic was dismissed from further analysis in this document.

## **CULTURAL SOUNDSCAPES**

NPS *Management Policies* 2006 and NPS Director’s Order 47, Sound Preservation and Noise Management, provide guidance to protect the cultural soundscapes associated with park units. There is local through-traffic, including trucks that drive through the monument along Ruins Road that creates noise within the monument. Actions proposed in Alternatives 2 and 3 could result in some increased visitation and related vehicle traffic along Ruins Road. This potential traffic, although minimal, and other activities such as oil and gas wells that could cause unnatural sounds in and adjacent to Aztec Ruins would continue to be monitored. If necessary, action would be taken to prevent or minimize unnatural sounds that adversely affect monument resources or values, or visitors’ enjoyment of them to ensure that impacts to the national monument’s soundscapes would be short term and negligible. Therefore, this impact topic was dismissed from further analysis.

## **PRIME AND UNIQUE FARMLAND**

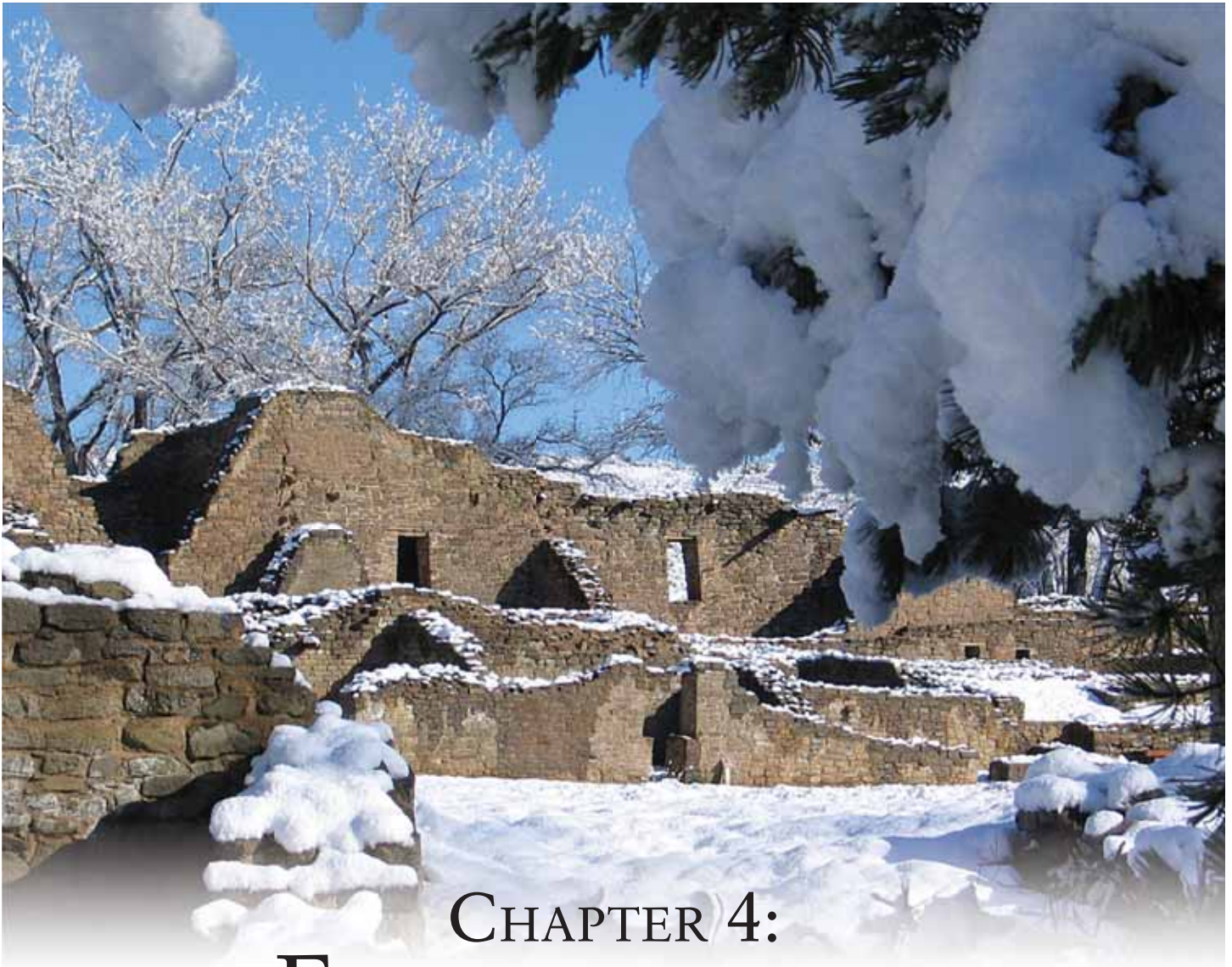
In August 1980, the Council on Environmental Quality directed that federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture’s Natural Resource Conservation Service as prime or unique. Prime or unique farmland is defined as soil that 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 or unique farmlands within

Aztec Ruins National Monument; therefore, this topic is dismissed from further analysis 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 the disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed alternatives would not have health or environmental effects on minorities or low-income populations or communities, because the national monument would continue to be available for use by all visitors, regardless of race or income. Race or income would not be a consideration in hiring construction workforces, and no new fees would be instituted that would exclude low-income individuals. Additionally, Aztec Ruins National Monument would continue to regularly consult with traditionally affiliated American Indians to ensure that the selected actions proposed in this plan have no adverse impact to these communities. Because there would be no adverse effects on environmental justice, this impact topic was dismissed from further analysis in this document.





## CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential effects of the management alternatives on cultural resources, natural resources, visitor experience and educational opportunities, socioeconomic environment, and monument operations.







## INTRODUCTION TO ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act mandates that environmental assessments disclose the environmental impacts of a proposed federal action. In this case, the proposed federal action is the implementation of the *General Management Plan* (GMP) for Aztec Ruins National Monument. This chapter analyzes the potential effects of the management alternatives on cultural resources, natural resources, visitor experience and educational opportunities, socioeconomic environment, and monument operations.

The alternatives provide broad management direction. The conceptual nature of their potential consequences allows for the alternatives to be analyzed in only general terms. The environmental assessment should be considered a programmatic document. Prior to undertaking specific actions as a result of the GMP, park managers will determine whether or not more detailed environmental documents will be required under the provisions of the National Environmental Policy Act.

The first section of this chapter discusses terms and assumptions used in identifying impacts. The following four sections identify important policy and terminology used in assessing the environmental impacts of the alternatives that includes: cumulative impacts, impairment of monument resources, unacceptable impacts, and relationship of the impact analyses to requirements of Section 106 of the National Historic Preservation Act. The next section discusses methods that the planning team used to identify impacts and includes definitions of terms for each resource impact analysis. The impacts of the alternatives are then analyzed by resource topic in the order they appear in Chapter 3, “Affected Environment.” Each impact topic includes a description of the beneficial and adverse impacts of the alternative, a discussion of cumulative effects, and a conclusion.

### TERMS AND ASSUMPTIONS FOR ANALYZING IMPACTS

Each impact topic area includes a discussion of impacts, including intensity, duration, and type. Intensity of impact describes the degree, level, or strength of an impact as negligible, minor, moderate, or major. Because definitions of intensity vary by resource topic, separate intensity definitions are provided for each impact topic.

*Duration* of impact considers whether the impact would occur over the short term or long term. *Short-term* impacts are those that, within a short period of time, generally less than one year, would no longer be detectable as the resource or value returns to its pre-disturbance condition or appearance. *Long-term* impacts refer to a change in a resource or value that is expected to persist for more than one year.

The type of impact refers to whether the impact on the environment would be beneficial (positive) or adverse (negative) and direct or indirect, as described below. Although evaluated in the analysis, direct and indirect impacts are not identified as such.

*Beneficial* — a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

*Adverse* — a change that declines, degrades, or moves the resource away from a desired condition or detracts from its appearance or condition.

*Direct* — an effect that is caused by an action and occurs in the same time and place.

*Indirect* — an effect that is caused by an action, but occurs later in time or is farther removed in distance and is still reasonably foreseeable.

The impact analyses for the action alternatives (Alternatives 2 and 3) describe the difference between implementing the no-action alternative and implementing each action alternative. In other words, to understand the consequences of any action alternative, the reader must also consider what would happen if no action were taken.

## CUMULATIVE IMPACTS

Council on Environmental Quality 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

Cumulative impacts are assessed for both the no-action and action alternatives. These impacts were determined by combining the impacts of the alternatives with the impacts of other past, present, and reasonably foreseeable actions at the national monument and in neighboring areas administered by other agencies and local governments. Development activities that have occurred in the recent past, are now under way, or that would be implemented in the reasonably foreseeable future were included. The geographic scope for this analysis was the City of Aztec, which surrounds the monument, and the temporal scope was within five years of 2008.

### Aztec Ruins National Monument Fire Management Plan

The NPS *Management Policy 2006* and NPS Director’s Order 18 both require that each park with vegetation capable of burning prepare a wildland fire management plan to guide a fire management program that is responsible to the park’s natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities. Aztec Ruins National Monument contains vegetation within its authorized boundary capable of burning and therefore requires a fire management plan. The plan is critical to any management decision. The following is a summary of fire management needs:

- Guide the decision-making process where safety, social, political, and resource values are evaluated and identify appropriate management strategies for wildland fires.
- Provide a framework for fuels management strategies through the use of mechanical treatments and prescribed fire.
- Provide a framework to be able to plan and implement a wildland fire program across agency boundaries.

To meet these needs, trees, shrubs, grasses, and other ground cover may require selected vegetative clearing to reduce the chance of unwanted wildfires and associated damage to cultural resources and other facilities.

### **New Gas and Oil Wells Within and Adjacent to the Monument**

The northwestern portion of New Mexico, known as the San Juan Basin, has played an important role in the energy business and overall economy of New Mexico (NPS 2007). Aztec Ruins National Monument lies within the San Juan Basin and along the edge of the Mesa Verde–Blanco oil field. Additional oil and gas wells may be developed outside the monument, particularly if oil prices increase. As noted in previous chapters, additional wells may also be drilled within the monument’s boundaries in the future because the National Park Service does not own the mineral rights. New wells are proposed within the monument periodically. Wells and related pipelines that are currently proposed are not specifically described because their status is dynamic and subject to change as the well’s viability is explored.

Proposed new oil and gas development in the monument would be subject to the approval standard of “use of least damaging technologically feasible methods” of the 36 CFR 9B Regulations (see “Nonfederal Subsurface Rights” in Chapter 2). Mitigation would be incorporated to ensure the least intrusive locations for access roads and drilling sites and all necessary resource protective measures in the conduct of operations. Directional drilling from surface locations outside the monument to extract resources beneath the monument is a potential option that could also be considered. In addition, per these regulations, future wells within the monument must protect monument resources during operation through a National Park Service-approved operation plan.

### **Encroaching Residential and Other Development**

A housing development immediately adjacent to the northern boundary of Aztec Ruins National Monument has been proposed and approved by the City of Aztec Commissioners. Phase I of the development consists of approximately 189 lots for single-family dwellings in a 55-acre area. The City of Aztec granted approval of the preliminary development plat, contingent on the conditions delineated in a memorandum of agreement signed in January 2006 by the U.S. Environmental Protection Agency (Region 6), the New Mexico State Historic Preservation Division, and the development to minimize potential impacts and to address landscape design. To date, there has been some earth movement but no construction.

Other potential development near the monument includes the possibility of utility corridors, communication towers, and road realignments.

### **City of Aztec Comprehensive Land Use plan — Update of Goals and Policies (2008)**

The City of Aztec recently updated the goals and policies in the city’s Comprehensive Land Use Plan. The 12 goals in the plan include topics such as management of natural resources, scenic and historic areas, and open space, as well as economics, housing, and transportation. As evidenced by its goals and policies and stated in the introductory letter to the plan, the city supports maintaining governance at the local level, that is, keeping the city’s influence at the city, county, and state levels versus a federal mandate that they believe is significantly disconnected from northwestern New Mexico business and the local lifestyle. With local governance having great effect on the business environment in the greater Aztec area, the city will advocate for a healthy business climate and will promote a healthy physical environment. Aztec Ruins National Monument is not specifically mentioned in the Land Use Plan.

### **Aztec Trail System (Previously Identified as Animas River Trail)**

The City of Aztec is proposing a looped trail system along the Animas River corridor to encourage use and enjoyment of the river and to provide alternative access to Aztec Ruins National Monument, city parks, and recreation facilities. This trail development would be part of the regional trail system in San Juan County. Based on information provided on the City of Aztec Web site (Infrastructure Capital Improvements Projects, 2010–14), preliminary design and engineering and an environmental assessment are to begin in 2010, although specific funding sources have yet to be identified. Final design and construction would potentially occur from 2011 through 2013.

### **City of Aztec Main Avenue Extension**

To connect Main Avenue to the Animas River and Aztec Ruins National Monument, and to provide access to the future Aztec Trail System (see above), the city is planning to extend Main Avenue to the north. In addition, a parking area and trailhead would be developed for trail users. The city indicates this extension is also needed to promote potential economic development in the area due east of the monument on the eastern side of the river. Construction could begin in 2009, once design is completed and all necessary archeological and environmental clearances have been obtained.

## **IMPAIRMENT OF NATIONAL PARK RESOURCES**

*NPS Management Policies 2006* require an analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act of 1916 and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting monument resources and values. However, laws do give National Park Service management the discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impacts do not constitute impairment of the affected resources and values.

Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute impairment, but an impact would be more likely to constitute impairment if it has a major or severe adverse effect on 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 to enjoy the park; or
- identified as a specific goal in the park's GMP or other relevant National Park Service planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. A determination of impairment is included in the impact analysis in the "Conclusion"



statement for all impact topics relating to the monument's resources and values based on the previously listed criteria. Visitor experience and educational opportunities, socioeconomic environment, and monument operations are not considered monument resources; therefore, impairment findings are not included as part of the impact analysis for these topics.

## UNACCEPTABLE IMPACTS

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

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

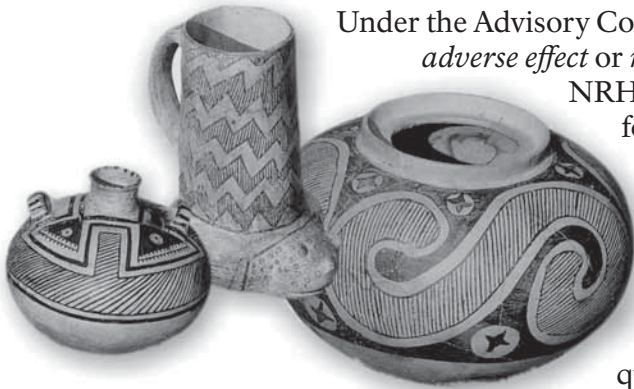
- be inconsistent with a park's purposes or values, or
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- unreasonably interfere with
  - park programs or activities, or
  - an appropriate use, or
  - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
- National Park Service concessioner or contractor operations or services.

In accordance with NPS *Management Policies 2006*, park managers must not allow uses that would cause unacceptable impacts to park resources. To determine if unacceptable impact could occur to the resources and values of Aztec Ruins National Monument, the impacts of the alternatives in this GMP were evaluated based on the previously identified criteria. A determination on unacceptable impacts is made in the Conclusion statement for each of the physical resource topics carried forward in this chapter.

## IMPACTS TO CULTURAL RESOURCES, AND SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

In this GMP and environmental assessment, impacts to cultural resources (archeological resources and cultural landscapes) are described in terms of type, context, duration, and intensity, which is consistent with the Council of Environmental Quality regulations. These impact analyses are also intended to comply with the requirements of both the National

Environmental Policy Act and Section 106 of National Historic Preservation Act. In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR 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 on or eligible to be listed on the National Register of Historic Places (NRHP); (3) applying the criteria of adverse effect to affected cultural resources, either listed on or eligible to be listed on, the NRHP; 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, NRHP-eligible cultural resources. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner than would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified

subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. A finding of no adverse effect is found when the undertaking's effects do not meet the criteria of 800.5(a)(1) [800.5.(b)].

Council of Environmental Quality regulations and the NPS *Conservation Planning, Environmental Impact Analysis and Decision-making* (DO-12) Handbook 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 because of mitigation, however, is an estimate of the effectiveness of mitigation only under the National Environmental Policy Act. Such reduction in impact intensity does not suggest that the level of effect as defined by Section 106 and 36 CFR 800 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss of integrity that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 and 36 CFR 800 may be mitigated, the effect remains adverse.

A brief Section 106 summary is included following the impact analysis for archeological resources and cultural landscapes in Alternative 3, the Preferred Alternative. This summary is intended to identify NRHP-eligible or -listed cultural resources and to make a preliminary determination of effect for informational purposes; however, it is not intended to fulfill the requirements of Section 106. The National Park Service will comply with Section 106, in accordance with 36 CFR 800, as it proceeds with further projects and plans related to the GMP. As the Preferred Alternative is implemented, Aztec Ruins National Monument staff will consult with the New Mexico State Historic Preservation Officer and make an assessment of the effect of each undertaking on cultural resources, based on the criterion of effect and criterion of adverse effect found in the Advisory Council's regulations.

## METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

### CULTURAL RESOURCES

#### ARCHEOLOGICAL RESOURCES

Information on archeological sites gathered during the cultural resource inventory that began in 2005 was used in determining archeological impacts. This project has resulted in current records and condition assessments for all archeological sites. Monument resource specialists were also consulted. References to the West Ruin, East Ruin, and North Ruin in “Archeological Resources” pertain to the major ruin by that name, as well as the smaller, associated archeological features and sites described in the “Affected Environment.”

In order for an archeological resource to be listed on the NRHP, it must meet one or more of the following criteria of significance: (A) associated with events that have made a significant contribution to the broad patterns of our history; (B) associated with the lives of persons significant in our past; (C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; and (D) have yielded, or may be likely to yield, information important in prehistory or history.

Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. An archeological site(s) can be eligible to be listed on the NRHP if the site(s) has yielded, or may be likely to yield, information important in prehistory or history. An archeological site(s) can be nominated to the NRHP in an infinite variety of historic contexts within which a site may be eligible for NR listing, and local, state, or national are the general levels within which site significance can be evaluated (see National Register Bulletin #15, How to Apply the National Register Criteria for Evaluation).

Applying Council of Environmental Quality regulations for the National Environmental Policy Act, the thresholds for the intensity of impacts on archeological resources are defined as follows:

#### *Negligible:*

Impacts would be at the lowest level of detection or barely measurable, with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of Section 106, the determination of effect would be *no adverse effect*.

#### *Minor:*

Adverse Impact — Impacts would be measurable or perceptible, but slight and localized within a relatively small area of a site or group of sites. Impacts would not affect the character-defining features of a NRHP-eligible or -listed site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact — A site would be preserved in its natural state. For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Moderate:***

Adverse Impact — Impacts would be measurable and perceptible, change one or more character-defining features, but would not diminish the integrity of the site to the extent that its NRHP eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial Impact — The site would be stabilized. For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Major:***

Adverse Impact — Impacts would be substantial, noticeable, and permanent. The impact is severe or of exceptional benefit. For NRHP-eligible or -listed sites, the impact changes one or more character-defining features, diminishing the integrity of the resource to the extent that it is no longer eligible for listing in the NRHP. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial Impact — Active intervention would be taken to preserve the site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**CULTURAL LANDSCAPES**

Information regarding cultural landscapes was compiled from the cultural landscape inventories completed for the monument, as well as from monument and regional resource specialists.

In order for a cultural landscape to be listed on the NRHP, it must meet one or more of the following criteria of significance: (A) associated with events that have made a significant contribution to the broad patterns of our history; (B) associated with the lives of persons significant in our past; (C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; and (D) have yielded, or may be likely to yield, information important in prehistory or history. The landscape must also have integrity of those patterns and features — spatial organization and land forms; topography; vegetation; circulation networks; water features; and structures/buildings, site furnishings, or objects — necessary to convey its significance (*Secretary of the Interior's Standards for the Treatment of Historic Properties*).

Applying Council of Environmental Quality regulations for National Environmental Policy Act analysis, the thresholds for the intensity of impacts on cultural landscapes are defined as follows:

***Negligible:***

Impacts would be at the lowest level of detection or barely measurable, with no perceptible consequences. For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Minor:***

Adverse Impact — Impacts would not affect a character defining pattern(s) or feature(s) of a NRHP-eligible or -listed cultural landscape. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact — Preservation of character defining patterns and features is done in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic*

*Properties.* For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Moderate:***

Adverse Impact — Impacts would alter a character defining pattern(s) or feature(s) of the cultural landscape but would not diminish the integrity of the landscape to the extent that its NRHP eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact — Rehabilitation of a landscape or its pattern(s) or feature(s) in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Major:***

Adverse Impact — Impacts would alter a character defining pattern(s) or feature(s) of the cultural landscape to the extent that it is no longer eligible to be listed on the NRHP. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial Impact — Restoration of a landscape or its pattern(s) and feature(s) in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

## NATURAL RESOURCES

### VEGETATION

Information on vegetation was compiled from vegetation inventories conducted in 2001 and 2002, other research reports, and from monument resource specialists. These reports and vegetation communities are described in Chapter 3, “Affected Environment.” In analyzing the various alternatives, the degree of impacts to a vegetative community should be in context with the frequency of occurrence in which the community type can be found (common or rare) and the type of proposed impact (direct or indirect, short- or long-term). Impact thresholds for vegetation are defined as follows:

***Negligible:*** No native vegetation would be affected, or some individual native plants could be affected, as a result of the alternative; however, there would be no effect on native species populations as a whole.

***Minor:*** The alternative would affect some individual native plants and would also affect a relatively minor portion of the species’ population.

***Moderate:*** The alternative would affect some individual native plants and would also affect a sizeable segment of the species’ population within the national monument.

***Major:*** The alternative would have a considerable effect on native plant populations and affect a relatively large area inside and outside of the monument.



## WILDLIFE

All available information on wildlife and wildlife habitat was compiled from wildlife inventories conducted in 2001 and 2002, existing planning documents, research reports, and consultation with monument specialists. These surveys and reports are described in Chapter 3, “Affected Environment.” The impact thresholds are defined as follows:

**Negligible:** There would be no perceptible impacts to wildlife species, their habitats, or the natural processes sustaining them. Impacts would be within the range of natural variability.

**Minor:** Impacts would be detectable, but would include only small, localized disturbances to individuals without interference to feeding, reproduction, or other factors affecting population levels.

**Moderate:** Impacts on wildlife, their habitats, or the natural processes sustaining them, would be measurable, of consequence, and localized. Impacts may include effects to breeding, migrating, or juvenile individuals. Mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the monument.

**Major:** Impacts on wildlife, their habitats, or the natural processes sustaining them would be measurable, of consequence, and severely adverse or major beneficial, with possible permanent consequences on the species or supporting resource.

## SPECIAL STATUS SPECIES

Threatened, endangered, and other sensitive species include those listed by the U.S. Fish and Wildlife Service as threatened, endangered, and/or proposed for listing under the Endangered Species Act of 1973. Section 7 of the Endangered Species Act requires federal agencies to consider the effects of agency actions on such species. Language consistent with Section 7 is used in the impacts analysis for these species. In addition, state and park sensitive species are also considered in the analysis.

All available information on threatened and endangered and other special status species was compiled from existing planning documents, research reports, and consultation with federal and state wildlife agencies and park specialists. State and federally listed species were identified through discussions with monument staff, informal consultation with the U.S. Fish and Wildlife Service, and with the New Mexico Division of Wildlife. The resulting list of species was compared with avian and mammalian inventory Annual Reports for Aztec Ruins (USGS 2002 a, 2002b, and 2003). Predictions for the potential for distribution of non-reported species were based on species habitat requirements and Gap Analysis Program habitat suitability data.

Impact thresholds for threatened, endangered, and other special status species are defined as follows:

**Negligible:** An action that would not affect any individuals of a sensitive species or their habitat within the monument. This would result in a determination of *no effect* from the U.S. Fish and Wildlife Service for listed or proposed species.

**Minor:** An action that would affect a few individuals of a sensitive species or have very localized impacts on their habitat within the monument. The change would require considerable scientific effort to measure and have barely perceptible consequences to the species or habitat function. Minor impacts would likely result in a U.S. Fish and Wildlife determination of *may affect / not likely to adversely affect* a species or its habitat due to discountable adverse effects or completely beneficial effects.

**Moderate:** An action that would cause measurable effects on: (1) a relatively moderate number of individuals within a sensitive species population; (2) the existing dynamics between multiple species (e.g., predator-prey, herbivore-forage, vegetation structure-wildlife breeding habitat); or (3) a relatively large habitat area or important habitat attributes within the monument. A sensitive species population or habitat might deviate from normal levels under existing conditions, but would remain indefinitely viable within the monument. The U.S. Fish and Wildlife determination of *may affect* would apply and would also include a determination of *likely* or *unlikely to adversely affect*, based on the specific situation.

**Major:** An action that would have drastic and permanent consequences for a sensitive species population, dynamics among multiple species, or almost all available critical or unique habitat area within the monument. A sensitive species population or its habitat would be permanently altered from normal levels under existing conditions, and the species would be at risk of extirpation from the monument. The U.S. Fish and Wildlife determination for major impacts would be *likely to adversely affect* or *is likely to jeopardize proposed species / adversely modify proposed critical habitat*, depending on the specific situation.

## VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES

Visitor surveys and personal observation of visitation patterns, combined with an assessment of what is available to visitors under current management, were used to determine the potential effects of the actions in each alternative. The impact on the ability of the visitor to experience and enjoy a full range of monument resources and to fully understand and appreciate the stories associated with the monument was analyzed by examining resources mentioned in the monument significance statement and the interpretive and educational opportunities of the various alternatives. The impact thresholds for visitor experience and educational opportunities are as follows:

**Negligible:** Visitors would likely be unaware of any effects associated with implementation of the alternative. Any effects would be short term. There would be no noticeable change in visitor use and understanding, or in any defined indicators of visitor satisfaction or behavior.

**Minor:** Changes in visitor use or understanding would be slight but detectable. Changes would not appreciably limit or enhance critical

characteristics of the visitor experience. Visitor satisfaction would remain stable.

**Moderate:** Changes in visitor use or understanding would be readily apparent. The visitor would be aware of the effects associated with the change and would likely be able to express an opinion about the changes. Visitor satisfaction would begin to either decline or increase as a direct result of the effect.

**Major:** Changes in visitor use or understanding would be readily apparent. The visitor would be aware of the effects associated with the change and would likely express a strong opinion. Visitor satisfaction would markedly decline or increase for the majority of visitors.

## SOCIOECONOMIC ENVIRONMENT

Concerns covered by this section include the local economy and adjacent land use patterns. Information on potential impacts was collected during meetings with stakeholders, from monument staff, and based on city trends. Potential changes in local economics were also extrapolated from visitor spending and economic analyses conducted for Aztec Ruins in 2003 and 2007 (see “Affected Environment”). Impact thresholds for the socioeconomic environment are defined as follows:

**Negligible:** The impact to neighbors, businesses, or other community members would be nonexistent, barely detectable, or detectable only through indirect means and with no discernable impact on local social or economic conditions.

**Minor:** The impact to neighbors, businesses, or other community members would be small, but detectable, localized in geographic area, and would not substantively alter social or economic conditions.

**Moderate:** The impact to neighbors, businesses, or other community members would be readily apparent, localized in geographic area, and would have noticeable effects on the established social or economic conditions.

**Major:** The impact to neighbors, businesses, and other community members would be readily apparent, would extend beyond the local community to the region, and would have a substantial influence on the established social or economic conditions.

## MONUMENT OPERATIONS

The impact analysis on monument operations considers the effects of the alternatives on the ability of monument infrastructure and staff to operate safely and efficiently. Various aspects of

monument operations, including current staff levels, funding levels, partnerships, volunteers, and trends, were reviewed.

For the purpose of this analysis, monument operations were evaluated given the current staff and funding available to perform duties necessary to protect and preserve resources, provide for visitor use and understanding of the site, and protect human health and safety. The ability of staff to manage the monument and meet its mission was assessed in the analysis of each alternative, including potential impacts to monument facilities, operations, staffing, administrative efficiency, and public health and safety. Specific duties include law enforcement, maintenance, interpretation and other visitor services, monument research, and general monument administration. Impact thresholds for monument operations are defined as follows.

***Negligible:*** Impacts on monument operations would be not be measurable or perceptible.

***Minor:*** Impacts on monument operations would be slight and localized with few measurable consequences.

***Moderate:*** Impacts on monument operations would be readily apparent to staff and possibly to visitors.

***Major:*** Impacts on monument operations would be readily apparent to staff and to visitors and would result in substantial, widespread changes.



## **IMPACTS OF ALTERNATIVE 1: NO ACTION (CONTINUATION OF EXISTING CONDITIONS)**

### **CULTURAL RESOURCES**

#### **ARCHEOLOGICAL RESOURCES**

##### **Impact Analysis**

The East Ruin and North Ruin could be adversely impacted as a result of Alternative 1. The focus of archeological preservation activities would remain on West Ruin; only high-priority cyclic maintenance and stabilization would occur at East Ruin. Therefore, East Ruin could suffer long-term, minor, adverse impacts through limited preservation activities and gradual deterioration from natural processes. The Aztec North Mesa Archeological District (North Mesa) could also suffer long-term, minor, adverse impacts due to pot hunting, all-terrain vehicle (ATV) traffic, and other ground-disturbing activities (see the Cultural Resources map in Chapter 1 for location of this archeological district). Social trails are currently developing as a result of periodic visitation to this area.

The West Ruin would continue to experience long-term, moderate, beneficial impacts from the continued emphasis on preservation activities, such as inventory and monitoring, backfill and fill level adjustment, stabilization, and research. Some long-term, minor, adverse impacts would also occur because ruins stabilization and backfilling would add modern materials such as new mortar and back dirt to the West Ruin. Heavy visitation to West Ruin could also result in long-term minor, adverse impacts that include potential vandalism, climbing on walls, and illegal collection of artifacts. Impacts could be mitigated through ongoing management, survey, evaluation, and the use of established trails to prevent impacts from exceeding minor levels.

Ongoing monitoring activities to assess stabilization of West Ruin and East Ruin and periodic condition assessments of archeological sites could result in long-term, negligible, benefits to these archeological resources. Additionally, emphasis on nonintrusive research methods, like geophysical prospecting, could result in similar benefits to West Ruin. The rehabilitation of the Kiva Trading Post to provide for cultural resource needs, including a place to wash, dry, and prepare artifacts for curation would result in long-term, minor, beneficial impacts by facilitating the preservation process.

Ongoing irrigation practices related to the orchards would have long-term, minor, adverse impacts on subsurface archeological sites due to groundwater saturation. Ongoing groundwater monitoring would help mitigate potential impacts.

##### **Cumulative Impacts**

Ongoing projects throughout Aztec Ruins National Monument, such as the cultural resource inventory, the master Backfill Plan, and other preservation activities at West Ruin, have resulted in long-term, moderate, beneficial impacts to the ruins and other archeological resources within the monument by inventorying, monitoring, and preserving resources associated with the ancestral Pueblo peoples. As noted in Chapter 2, “Alternatives,” some of these projects are ongoing.



Past residential and oil/gas development near the monument has adversely impacted archeological resources associated with ancestral Pueblo occupation of the Animas River valley. Residential development adjacent to the monument and future development of oil and gas wells both within and outside the monument boundaries could also adversely impact archeological resources. Existing regulations (36 CFR Part 9B) would help ensure that wells within the monument would be placed and operated to protect resources and minimize impacts. Thus, adverse impacts to archeological resources from within the monument would be long term, but minor.

To minimize impacts related to oil and gas development outside the monument, the National Park Service would work closely with representatives of the oil and gas industry to help ensure that any future drilling or resource extraction surrounding the monument would be done in concert with the monument's management goals and objectives. In the event that damage is caused to monument resources from activities outside monument boundaries, the National Park Service has authority to recover up to three times the damages from the company under the Park System Resources Protection Act, 16 U.S.C. Section 19jj. This statute is a strict liability statute that authorizes the National Park Service to recover response costs and damages from a person who destroys, causes the loss of, or injures park system resources. Thus, adverse impacts to archeological resources within the monument from outside activities would be long term and negligible to minor. However, impacts to archeological resources outside the monument boundary from these activities would most likely continue to be long term, moderate, and adverse, unless mitigated.

These impacts from past preservation activities at the monument and energy and residential development, when combined with the long-term, moderate, beneficial impacts associated with West Ruin preservation and the long-term, negligible to minor, adverse impacts associated with East Ruin and North Ruin in Alternative 1, would result in long-term, minor, adverse cumulative impacts to archeological resources.

## **Conclusion**

Preservation activities would be focused on West Ruin resulting in long-term, moderate, beneficial impacts to West Ruin and long-term, negligible to minor, adverse impacts to East Ruin and North Ruin. Heavy visitation at West Ruin and ground-disturbing activities on North Mesa could also result in long-term, negligible to minor, adverse impacts. Inventory and monitoring, nonintrusive research methods, and the rehabilitation of the Kiva Trading Post would have long-term, negligible to minor, beneficial impacts. Cumulative impacts would be long term and adverse, but minor. There would be no impairment of archeological resources from this alternative and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## **CULTURAL LANDSCAPES**

### **Impact Analysis**

Existing features of all three cultural landscapes would be retained, including the pear and apple orchards, other fruit trees and ornamentals, and remaining agricultural structures that are part of the Historic Vernacular Landscape. As a result, some nonnative vegetation and other features would both contribute to and detract from the integrity of cultural landscapes.

The pear and apple orchards, ornamentals, and the corral complex, the chicken coop, and fences in the immediate vicinity of the ruins would continue to be a noticeable visual distraction on

the Prehistoric Designed Landscape because this vegetation and modern farm features did not exist in the ancestral Pueblo cultural landscape, nor were they a part of their ancient economy. Retention would result in a long-term, moderate, adverse impact on the Prehistoric Designed Landscape. In contrast, the retention of the pear and apple orchards and other farm features would have a long-term, beneficial impact on the Historic Vernacular Landscape. However, the benefit would be only negligible because many of the elements of this landscape have been removed over the years and it lacks integrity. The orchard trees would not be replaced as they become hazardous or die through time resulting in some long-term, negligible benefit to the Prehistoric Designed Landscape.

The preservation activities at the West Ruin would result in long-term, negligible benefits to the Prehistoric Designed Landscape, whereas the limited or no preservation activity at East Ruin and North Ruin would result in long-term, negligible, adverse impacts to the Prehistoric Designed Landscape. Impacts would be negligible because of the large scale of this landscape in comparison to the size of each feature. The rehabilitation of the Kiva Trading Post would also negligibly benefit the Historic Designed Landscape because of the compatibility of its design with this landscape.

Nonnative trees that occur outside the Historic Designed Landscape, such as elms and Russian olives, would not be replaced as they become hazardous and are removed. Nonnative plants and invasive weeds would also be managed and native vegetation restored to the extent possible. These vegetation management strategies could slowly help improve the prehistoric scene and result in some long-term beneficial impacts to the Prehistoric Designed Landscape. However, because this natural process would be slow, limited in scope, and possibly extend beyond the life of this plan, the impact would most likely be negligible.

### **Cumulative Impacts**

Past preservation activities at West Ruin have resulted in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape because it is a dominant element on the landscape. Other more recent activities include ongoing oil and gas well development that have adversely affected the Prehistoric Designed Landscape and development of recreational vehicle parking and location of the administration buildings that have adversely impacted the Historic Designed Landscape. Oil and gas development both within and outside the monument and adjacent residential development would result in adverse visual impacts to the Prehistoric Designed Landscape because of equipment and infrastructure, such as pumps and roads, associated with oil and gas extraction and the presence of modern houses. Although existing regulations (36 CFR Part 9B) would help ensure that wells would be placed and operated to protect resources within the monument, equipment related to the wells and other structures, such as houses, would be a detraction to the monument landscape. Thus, adverse impacts would be minor to moderate in the long term.

These impacts from past activities and from future energy and residential developments when combined with the long-term, moderate, adverse impacts associated with other detracting features in the Prehistoric Designed Landscape in Alternative 1 would result in long-term, minor, adverse cumulative impacts to cultural landscapes.

### **Conclusion**

Retention of the orchards and other features of the Historic Vernacular Landscape would result in moderate, adverse impacts to the Prehistoric Designed Landscape and negligible, beneficial impacts to the Historic Vernacular Landscape in the long term. Removal of existing nonnative

vegetation and restoration with native species, outside the Historic Designed Landscape, would result in some long-term, negligible, beneficial impacts to the prehistoric scene. Cumulative impacts would be minor and adverse in the long term. There would be no impairment of cultural landscapes from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## NATURAL RESOURCES

### VEGETATION

#### Impact Analysis

Under Alternative 1, the vegetation management strategy would be to promote native species, while managing to preserve contributing elements of the three cultural landscapes as described above in “Cultural Landscapes.” Because most vegetation would be retained, some nonnative vegetation types would adversely impact cultural landscapes.

According to *NPS Management Policies 2006*, the National Park Service will reestablish natural functions and processes within park units, including native plants and animals. Retention of the pear and apple orchards, which are nonnative vegetation, would have a long-term, moderate, adverse impact on native vegetation regimes because there would be nearly four acres of concentrated nonnative vegetation that would continue to preclude the growth of native vegetation and would not be consistent with National Park Service guidance. In contrast, allowing nonnative trees (Russian olives and elms) to be removed and not replaced as they become hazardous or die and implementing management strategies to eliminate nonnative plants and restore native species, where compatible with cultural landscapes, would have long-term, negligible, beneficial impacts on the native vegetation.

#### Cumulative Impacts

Past development activities at Aztec Ruins and in areas adjacent to the monument have contributed to the introduction of nonnative vegetation. Ongoing oil and gas development inside and outside the monument, as well as residential development adjacent to its boundaries, threaten to further introduce nonnative vegetation and result in long-term, minor to moderate adverse impacts to vegetation, if not managed correctly. However, existing regulations (36 CFR Part 9B) would help ensure that wells within the monument would be placed and operated to protect and restore native vegetation, where appropriate. The monument’s *Fire Management Plan* could also result in selective clearing of unnatural concentrations of vegetation to protect cultural resources and to reduce the chance of unwanted wildfires. This clearing would result in minor, beneficial impacts to native vegetation in the long term by restoring a more natural regime.

These past and ongoing impacts when combined with the long-term, minor to moderate, adverse impacts of Alternative 1 would result in long-term, moderate, adverse cumulative impacts to vegetation.

#### Conclusion

Vegetation management strategies would result in long-term, moderate, adverse impacts to native vegetation regimes because pear and apple orchards would be maintained. However, other strategies that promote removal of nonnative vegetation and restoration of native species would result in some negligible, beneficial impacts over the long term. Cumulative impacts would be long term, adverse, and moderate. There would be no impairment of vegetation resources from

this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## **WILDLIFE**

### **Impact Analysis**

Wildlife management strategy would continue to be consistent with National Park Service policies. The monument would continue to manage for sustainable native wildlife populations with necessary exceptions that allow for the management of and protection of cultural resources.

Some species of the local wildlife community have become overly dependent on the nonnative pear and apple orchards and would benefit from their retention. This could be considered artificial sustenance of natural wildlife species in a nonnative vegetation system that is not compatible with National Park Service guidance or Aztec Ruins fundamental resources and values. According to *NPS Management Policies 2006*, the National Park Service will reestablish natural functions and processes within park units, including native plants and animals. Therefore, retention of the orchards would not be consistent with National Park Service guidance and would have a long-term, minor, adverse impact on local wildlife that normally would not be dependent on the orchards.

The future vegetation and cultural landscapes management plan would evaluate any potential impacts to related to removal of Russian olive trees along the Farmers Ditch.

### **Cumulative Impacts**

The monument's current *Fire Management Plan* could result in some minor, adverse impacts to native wildlife from vegetation clearing. Other similar contributions to cumulative impacts on area wildlife include habitat loss and fragmentation on surrounding lands due to past, present, and future development and other land uses. Scattered natural gas production, agriculture, and residential and commercial development surround the monument. New residential development is occurring to the north of the monument boundary, and the city is planning to expand its trail system. This could further increase the fragmentation of wildlife habitat and reduce travel corridors available to native wildlife, attract scavenging wildlife, remove native vegetation, and potentially increase the spread of noxious weeds. This habitat loss could result in long-term, minor to moderate, adverse impacts.

These impacts when combined with the long-term, minor, beneficial and adverse impacts of Alternative 1 would result in long-term, minor, adverse cumulative impacts to wildlife in the Aztec area.

### **Conclusion**

Impacts to local wildlife would be long term, minor, and adverse because the nonnative orchards would be retained. Cumulative impacts would be long term, minor and adverse. There would be no impairment of wildlife resources from implementation of this alternative, and it would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## **SPECIAL STATUS SPECIES**

### **Impact Analysis**

The main habitat areas for special status species within and alongside the monument include the Animas River, Farmers Ditch, and lateral ditches. Bats are likely to feed over the irrigation ditches, while bald eagle, southwestern willow flycatcher, black tern, and yellow-billed cuckoo potentially

could occur in the riparian zone along the Animas. Western burrowing owls could inhabit prairie dog burrows within the monument, and casual use by peregrine falcons is possible.

Current management activities at the monument do not adversely affect special status species, in accordance with *NPS Management Policies 2006*. Under the no-action alternative, this strategy would continue and no impacts would be expected from its implementation. Riparian vegetation and water sources would be maintained and would continue to support potential habitat for special status species, such as bats, bald eagle, southwestern willow flycatcher, black tern, and yellow-billed cuckoo. There would be no effect to threatened, endangered, or other special status species from the no-action alternative.

### **Cumulative Impacts**

Because no impacts to special status species would occur in Alternative 1, there would be no cumulative impacts.

### **Conclusion**

Riparian vegetation and water sources would be maintained, resulting in no impacts to special status species. There would be no cumulative impacts. No impairment of the monument's special status species would result from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## **VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES**

### **Impact Analysis**

Alternative 1 would continue to result in a relatively narrow visitor experience and opportunity for visitor understanding because visitor access to the ruins would remain restricted to the West Ruin, rather than expanding opportunities to view other ruins.

Retaining the administration trailer west of the visitor center would result in moderate, adverse impacts on the viewshed experienced by visitors, while removing the abandoned Aztec Ruins Trading Post would improve the viewshed and provide a minor benefit to visitors. Overall, changes to facilities would result in long-term, minor, adverse impacts because the administration trailer would remain.

Retention of the pear and apple orchards and other noticeable visible distractions such as the corral complex (all features of the Historic Vernacular Landscape) would have a long-term, moderate, adverse impact on visitor experience. Many visitors would prefer to see a landscape that more closely represents the natural scene during the period of Pueblo occupation, rather than relatively modern orchards and farm features. Retention of the orchards would also have a long-term, moderate, adverse impact on visitor understanding for those whose curiosity and ability to explore and make personal connections to the monument's primary ancestral Pueblo significance would be distracted by the orchards, as opposed to a scene of natural vegetation.

Limited partnerships with local organizations and educational programs by the National Park Service within the local community, as staff is available, would provide for better understanding of monument resources. These educational opportunities would enhance the experience of local citizens when they visit Aztec Ruins, as well as promote its stewardship, because they will better understand the monument's history. This enhanced understanding would result in long-term, negligible to minor, beneficial impacts.



### Cumulative Impacts

Similar to cumulative impacts for other resources, ongoing oil and gas well development within and outside the monument would adversely impact visitor experience because of the potential viewshed impacts. However, existing regulations would minimize these impacts within the monument and ensure that significant visual and other characteristics of the Prehistoric Designed Landscape are preserved for visitor enjoyment. Thus, impacts would most likely be long term and adverse, but at most minor. Potential residential development also threatens the prehistoric scene; however, these adverse impacts would most likely be negligible to minor for most visitors because their experience would be focused on the West Ruin.

Reasonably foreseeable future actions that are being undertaken by the city and would most likely affect visitors include the extension of Main Street and the trail system along the Animas River. Both actions would provide access to new visitor opportunities, such as walking and biking, outside the monument that could ultimately connect with the monument and result in long-term, minor to moderate, beneficial impacts for area visitors.

These impacts when combined with the long-term, minor to moderate adverse and minor beneficial impacts of Alternative 1 would result in minor, adverse cumulative impacts to visitor experience and educational opportunities in the long term.

### Conclusion

Visitor access would continue to be limited to the West Ruin, resulting in long-term, minor, adverse impacts to visitor experience. Retention of the administration trailer, the orchards, and other features of the Historic Vernacular Landscape would continue to degrade the prehistoric scene for some visitors resulting in long-term, minor to moderate, adverse impacts. Improved visitor understanding related to limited partnerships and community education would contribute to long-term, minor, beneficial impacts. Cumulative impacts would be long term, minor, and adverse.

## SOCIOECONOMIC ENVIRONMENT

### Impact Analysis

**Local Economy.** In the short term, visitation to the monument would most likely remain at current levels. Long-term visitation would likely depend on national and regional economic conditions and how potential visitors respond to those conditions over time. In the short term, less than 10% of visitors would most likely be day users and the remaining 90% would be visitors on day trips from outside the local area or visitors on overnight trips staying in local accommodations, including campgrounds. Visitor spending in the Aztec area would be similar to values reported in 2003 and 2007, approximately \$1.16 to \$1.3 million. This visitor spending would continue to result in short-term and most likely long-term, minor, beneficial impacts to the local economy. However, if visitor use declined, local revenues attributable to visitor spending would also decline.

Ongoing monument operations, including repair and rehabilitation projects, removal of the Aztec Ruins Trading Post, and the rehabilitation of the Kiva Trading Post, would result in short-term and long-term, negligible to minor, beneficial impacts to the local economy because of expenditures related to supplies, construction materials, and local labor. Current staff would also continue to contribute to the local economy in a long-term, negligible, but beneficial way through

their expenditures for housing, food, and other daily and long-term needs within the local and regional area.

**Adjacent Land Use.** Ongoing monument operations would not adversely affect adjacent land uses, such as the private lands to the north, where residential development is planned. Landowners would most likely benefit from the proximity of the monument to their lands.

### **Cumulative Impacts**

Present and reasonably foreseeable future projects that could contribute to social and economic cumulative impacts include ongoing oil and gas development, the proposed residential development adjacent to the monument, the updated comprehensive land use plan, and creation of the city trail and related parking. Most of these projects or operations, if instituted or approved by the City of Aztec, would be for the purposes of expanding the local economy and generating additional revenues. Any future residential construction near the monument could result in potentially new families moving into the area and spending their dollars within the local economy. Similarly, the new trail along the Las Animas could provide new recreational opportunities for visitors to the area, potentially increasing the length of stay for many visitors and their related expenditures within the local community. The comprehensive plan for the city would continue to foster a positive environment for economic growth. In part or in whole, these projects would result in long-term, minor, beneficial impacts to the local economy. Despite increased visitation or population, the range of dining, lodging, or retail opportunities would remain limited.

These impacts when combined with the short-term and long-term, negligible to minor, beneficial impacts of Alternative 1 would result in minor, beneficial cumulative impacts in the long term.

### **Conclusion**

Visitor spending would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. Ongoing monument operations, current employee spending, and proposed rehabilitation projects would also contribute to the local economy, resulting in short-term and long-term, negligible, beneficial impacts. Cumulative impacts would be long term, minor, and beneficial.

## **MONUMENT OPERATIONS**

### **Impact Analysis**

**Facilities.** Adaptive reuse of the Kiva Trading Post would have long-term, minor, beneficial impacts to operations because of the additional cultural resource offices, work space, and laboratory area for artifacts to be washed, dried, and prepared for curation. Occupation of the Kiva Trading Post would also require regular maintenance of the structure, which would further its preservation.

The continuing use of the administration trailer for the administrative headquarters of the monument would result in ongoing long-term, moderate, adverse impacts to staff and monument operations because of the inadequate infrastructure and workspace within the trailer. Additionally, the trailer does not comply with current regulations for disabled visitors, and there are safety issues that include a lack of fire sprinklers and old wiring. The trailer was not designed

or intended to be permanent office space, and it is not in keeping with National Park Service policies since it is a double-wide trailer.

Removing the Aztec Ruins Trading Post and rehabilitating the Kiva Trading Post would result in long-term, minor, beneficial impacts by eliminating concerns about vandalism and safety of these structures and the potential allocation of resources needed to address these concerns.

**Staffing and Administrative Efficiency.** The proposed outreach program, although beneficial to the local community (see “Socioeconomic Environment”), would continue to stretch staff and reduce their overall efficiency because of the limited number of staff available to address monument visitor use and resource management needs, as well as interact within the community. These competing demands both within the monument and outside the monument would result in long-term, minor to moderate, adverse impacts to monument operations.

Retention of the pear and apple orchards would have a long-term, moderate, adverse impact on staff efficiency because more staff time is needed to maintain the orchards than native vegetation.

### **Cumulative Impacts**

Past and present activities that have affected monument operations include the expansion of the monument boundaries that occurred in 1988, which did not include an expansion of the staff, and current and ongoing oil and gas operations. These activities require additional staff time to manage more resources and to identify and address potential impacts and needed mitigation associated with oil and gas wells. Thus, long-term, moderate, adverse impacts to monument operations have resulted since staffing levels have never increased.

Reasonably foreseeable future activities include the trail along the Animas River that may be designed and built by the City of Aztec. This trail would be beneficial both to the city and visitors. Because visitors using the trail would enter the monument ruins through the visitor center, no new impacts are anticipated.

These impacts when combined with the long-term, minor to moderate, adverse impacts and minor, beneficial impacts of Alternative 1 would result in long-term, moderate, adverse cumulative impacts to monument operations.

### **Conclusion**

The existing administration trailer would continue to provide insufficient space for monument staff and compromise safety, resulting in long-term, moderate, adverse impacts. Removal of the Aztec Ruins Trading Post and rehabilitation of the Kiva Trading Post would provide long-term, negligible to minor, beneficial impacts. Staffing levels and efficiency would face long-term, moderate, adverse impacts because of the demands on staff time to support resource and program needs. Cumulative impacts would be long term, moderate, and adverse.

## IMPACTS OF ALTERNATIVE 2

### CULTURAL RESOURCES

#### ARCHEOLOGICAL RESOURCES

##### Impact Analysis

Alternative 2 impacts that would be the same as Alternative 1 include the following:

The West Ruin would continue to experience long-term, moderate, beneficial impacts from the continued emphasis on preservation activities, such as inventory and monitoring, backfill and level adjustment, stabilization, and research. Some long-term, minor, adverse impacts would also occur because ruins stabilization and backfilling would both add modern materials such as new mortar and back dirt to the West Ruin. Heavy visitation to West Ruin could also result in long-term minor, adverse impacts that include potential vandalism, climbing on walls, and illegal collection of artifacts. Impacts could be mitigated through ongoing management, survey, and evaluation, and the use of established trails to prevent impacts from exceeding minor levels.

The North Mesa could also suffer long-term, minor, adverse impacts due to pot hunting, ATV traffic, and other ground-disturbing activities. Social trails are currently developing as a result of periodic visitation to this area.

The rehabilitation of the Kiva Trading Post to provide for cultural resource needs, including a place to wash, dry, and prepare artifacts for curation, would result in long-term, minor, beneficial impacts by facilitating the preservation process.

In Alternative 2, cyclic maintenance projects and preventive and proactive ruins stabilization activities would be expanded to include cyclic preservation at East Ruin and other significant archeological sites throughout the monument resulting in long-term, moderate, beneficial impacts. Similar to West Ruin, some long-term, minor, adverse impacts would also occur related to the addition of modern materials as part of stabilization work. Ongoing monitoring activities to assess stabilization priorities and periodic condition assessments of archeological sites would be increased, in comparison to Alternative 1, and would result in long-term, minor, benefits to these archeological resources. Additionally, emphasis on nonintrusive research methods, like geophysical prospecting, could result in similar benefits to West Ruin, East Ruin, and throughout the monument.

Trail construction activities and use by visitors could cause long-term, minor, adverse impacts to North Ruin and East Ruin due to potential disturbance by visitors. Similarly, documented archeological resources outside of the main West, East, and North Ruin complexes could also be disturbed by visitors who wander off the trail. However, the implementation of mitigation and protection measures would help ensure that impacts are limited. Such measures could include routing the trail to avoid fragile archeological resources, while also allowing for visitors to experience the ruins; preconstruction treatments such as information gathering and data recovery; monitoring of construction activities to protect known and unknown archeological resources; visitor education; and allowing visitors out to the East Ruin and North Ruin only on ranger-led tours. The exact location of the trail and specific mitigation measures would be

determined during future planning, design, and compliance activities specifically for the trail and to minimize impacts to archeological resources. Information collected through mitigation efforts would have a long-term, minor to moderate, beneficial impact on the knowledge base used to manage the resource.

Removal of the pear and apple orchards would have a minor, long-term, beneficial impact on subsurface archeological sites due to the elimination of groundwater saturation resulting from irrigation practices related to the orchards.

### **Cumulative Impacts**

Impacts from past, present, and reasonably foreseeable future projects would be the same as under Alternative 1. In summary, long-term, moderate, beneficial impacts have occurred because of past preservation activities at West Ruin. Long-term, minor, adverse impacts have resulted from past residential and oil/gas development and would result from current and future oil and gas wells adjacent to and within the monument. Existing regulations (36 CFR Part 9B) would help ensure that new wells within the monument would be placed and operated to protect monument resources. These impacts when combined with the long-term, moderate, beneficial impacts and negligible to minor, adverse impacts of Alternative 2 would result in long-term, minor, beneficial cumulative impacts to archeological resources.

### **Conclusion**

Preservation activities would be expanded throughout the monument, resulting in long-term, minor to moderate, beneficial impacts to archeological resources. New trail construction and related visitor use could result in long-term, minor, adverse impacts to East Ruin, North Ruin, and other archeological resources. Monitoring and inventorying activities and nonintrusive research methods would occur more frequently, resulting in long-term, minor, beneficial impacts, as would the rehabilitation of the Kiva Trading Post. Cumulative impacts would be long term and minor beneficial. There would be no impairment of archeological resources from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## **CULTURAL LANDSCAPES**

### **Impact Analysis**

In Alternative 2, a hierarchy of importance would be established for the overlapping cultural landscapes. This hierarchy would facilitate and enhance the preservation and management of the two NRHP-eligible landscapes — the Prehistoric Designed Landscape (first priority) and the Historic Designed Landscape (second priority). Because it is not eligible for NRHP, features of the Historic Vernacular Landscape that either conflict with or degrade these two primary landscapes would be considered for removal. As features in the Historic Vernacular Landscape are evaluated and potentially removed using these priorities, the integrity of the Prehistoric Designed Landscape would be improved, resulting in long-term, moderate, beneficial impacts over time.

Specifically in this plan, removal of the pear and apple orchards, all other fruit trees, and ornamentals (roses and lilacs) associated with the Historic Vernacular Landscape would eliminate a noticeable distraction on the Prehistoric Designed Landscape and result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape. Other conflicting features of the Historic Vernacular Landscape would be evaluated in the vegetation and cultural landscapes management plan or on a case-by-case basis. Although the pear and apple orchards



are contributing features to the Historic Vernacular Landscape, this landscape is ineligible for the NRHP. Therefore, the removal of the orchards would result in long-term, negligible, adverse impacts on that landscape.

The restoration and maintenance of native vegetation throughout the monument would also contribute to restoration of the ancient Pueblo scene. This would further contribute to long-term, moderate, beneficial impacts by further enhancing the integrity of the Prehistoric Designed Landscape.

The proposed trail to the North Ruin and East Ruin would result in long-term, minor, adverse impacts on the Prehistoric Designed Landscape and the Historic Vernacular Landscape because it introduces a new element that would visually intrude upon these landscapes. Bridges would be constructed where the trail crosses the Farmers Ditch, resulting in long-term, minor, adverse impacts to the integrity of the historic ditch.

Aztec Ruins Trading Post is in close proximity to, but not within, the Historic Designed Landscape; therefore, adaptive reuse and rehabilitation of the Aztec Ruins Trading Post would result in long-term, minor, beneficial impacts to the Historic Designed Landscape because the exterior would be rehabilitated to preserve its historic character. Removal of the administration trailer would have long-term, negligible, beneficial impacts on all three landscapes. Infrastructure associated with adaptive reuse and restoration of the Kiva Trading Post, such as parking and lighting, may have long-term, minor, adverse impacts on the historic district. These impacts could be either beneficial or adverse, depending on design. Impacts would be minimized through designs that blend in or complement the Historic District.

### **Cumulative Impacts**

Similar to Alternative 1, past preservation activities at West Ruin have resulted in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape because it is a dominant feature on the landscape. More recent activities include ongoing oil and gas well development that have adversely affected the Prehistoric Designed Landscape and development of recreational vehicle parking and location of the administration buildings that have adversely impacted the Historic Designed Landscape. Oil and gas development both within and outside the monument and adjacent residential development would result in adverse visual impacts to the Prehistoric Designed Landscape because of equipment and infrastructure. Thus, adverse impacts related to development would be minor to moderate in the long term. When combined with the long-term, negligible to moderate, beneficial impacts and minor, adverse impacts of Alternative 2, cumulative impacts would be long-term, moderate, and beneficial.

### **Conclusion**

The removal of the pear and apple orchards would result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape and long-term, negligible, adverse impacts to the Historic Vernacular Landscape. Other contributing features to the Historic Vernacular Landscape that conflict with NRHP-eligible landscapes would be evaluated for retention or removal on a case-by-case basis or through other plans. The trail would cause long-term, minor, adverse impacts to the Prehistoric Designed Landscape. Rehabilitation of the Aztec Ruins and Kiva Trading Posts and removal of the administration trailer would result in long-term, minor to moderate, beneficial impacts to the Prehistoric Designed Landscape. Cumulative impacts would be long term, moderate, and beneficial. There would be no impairment of cultural landscapes from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## NATURAL RESOURCES

### VEGETATION

#### Impact Analysis

Removal of the pear and apple orchards would have long-term, moderate, beneficial impacts on native vegetation regimes because nearly four additional acres of nonnative vegetation would be replanted with native vegetation once the nonnative orchards are removed. Additional native vegetation would be restored and maintained throughout the entire Prehistoric Designed Landscape, resulting in additional beneficial impacts.

Construction of the trail to the East Ruin and North Ruin through the Aztec North Mesa Archeological District would have long-term, minor, adverse impacts to vegetation along the trail alignment from the replacement of native vegetation with trail surface. Adverse impacts could also result from the encroachment of exotic species in some vulnerable areas due to ground disturbance. Mitigation actions such as weed control would minimize these impacts and keep them at a minor level.

The areas in vicinity of the Aztec Ruins and Kiva Trading Posts have been previously disturbed; therefore, there would be no impacts to vegetation from these buildings. Staging for all construction activities would occur in a previously disturbed area and would be properly mitigated per the measures outlined in Chapter 2.

#### Cumulative Impacts

Past, present, and reasonably foreseeable future activities and related impacts would be the same as under Alternative 1. Ongoing oil and gas development inside and outside the monument, as well as residential development adjacent to its boundaries, threaten to further introduce nonnative vegetation and result in long-term, minor to moderate adverse impacts to vegetation, if not managed correctly. The monument *Fire Management Plan* could also result in selective clearing of unnatural concentrations of vegetation to protect cultural resources and to reduce the chance of unwanted wildfires. This clearing would result in minor, beneficial impacts to native vegetation in the long term by restoring a more natural regime. When combined with the long-term, moderate beneficial and adverse impacts of Alternative 2, these activities would result in minor, beneficial cumulative impacts in the long term.

#### Conclusion

Removal of nonnative vegetation, such as the pear and apple orchards would result in long-term, moderate, beneficial impacts to vegetation. Some removal of native vegetation due to the trail to North Ruin and East Ruin would result in long-term, minor, adverse impacts. Because building construction activities would occur in previously disturbed areas, no vegetation impacts would occur. Cumulative impacts would be minor and beneficial in the long term. There would be no impairment of vegetation resources from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### WILDLIFE

#### Impact Analysis

As noted in Alternative 1, the monument would continue to manage for sustainable native wildlife populations with necessary exceptions that allow for the management of and protection of cultural resources.

In Alternative 2, removal of the nonnative orchards would be consistent with NPS *Management Policies 2006* and Aztec Ruins fundamental resources and values by reestablishing natural functions and processes within the monument, including native plants and animals. Therefore, removal of the orchards would have a long-term, minor, beneficial impact on native wildlife once native vegetation is restored. In the short-term, minor adverse impacts would occur to wildlife currently using the orchards for nesting, feeding, or other activities because they would be temporarily impacted as they sought similar habitat in new locations. Prior to their removal, the orchards would be surveyed for wildlife, and appropriate methods for removing any nonnative species and protecting native species would be identified.

Disturbance during construction of the trail to the East Ruin and North Ruin would have short-term, minor to moderate, adverse impacts to wildlife such as deer, reptiles, avian species, and others that commonly use the affected habitats. Long-term, minor adverse impacts would result from increased human activity due to use of the trail. Larger mammals are generally accustomed to human activity and long-term impacts should be no more than minor to species such as deer and coyote. To smaller species such as reptiles, the trail would be more of an impediment to their movements and may have long-term, minor to moderate, adverse impacts. The potential for impacts would be greatest in the vicinity of the Farmers Ditch, which supplies a source of water and cover to wildlife in the area. Rehabilitation of the trading posts would result in no impacts because of the lack of quality habitat in their vicinity.

Travel patterns of wildlife that tend to follow trail corridors, human scent, or use bridges may be disrupted. Animals that might be affected would include raccoons, feral animals, bobcats, coyotes, and potentially mountain lions. Impacts to these animal travel patterns would be long term, minor, and adverse.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future activities would be the same as described in Alternative 1. The monument's current *Fire Management Plan* could result in some minor, beneficial impacts to native wildlife from vegetation clearing. Other similar contributions to cumulative impacts on area wildlife include habitat loss and fragmentation on surrounding lands due to past, present, and future development and other land uses. Scattered natural gas production, agriculture, and residential and commercial development surround the monument. New residential development is occurring to the north of the monument boundary, and the city is planning to expand its trail system. This could further increase the fragmentation of wildlife habitat and reduce travel corridors available to native wildlife, attract scavenging wildlife, decrease native vegetation, and potentially increase the spread of noxious weeds. This continued habitat loss outside the monument could result in long-term, minor, adverse impacts.

These impacts when combined with the long-term, minor, beneficial and adverse impacts of Alternative 2 would result in long-term, negligible to minor, beneficial cumulative impacts to wildlife in the Aztec area.

### **Conclusion**

Removal of the orchards would have a long-term, minor, beneficial impact on native wildlife once native vegetation is restored. Wildlife would be adversely impacted in the short term because of trail construction activities and in the long term because of trail use by visitors, resulting in minor adverse impacts. Rehabilitation of the trading posts would result in no impacts because of the lack of quality habitat in their vicinity. Cumulative impacts would be long term, negligible to minor, and beneficial. There would be no impairment of wildlife resources from implementation

of this alternative, and it would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### **SPECIAL STATUS SPECIES**

Trail construction in the vicinity of the Farmers Ditch could affect special status bat species that feed over the water. However, bats are not likely to be feeding during daylight when construction would occur; thus, these impacts would be minimal. Short-term, negligible, adverse impacts to special status bat species could also result from periodic disturbance from visitor use of the trail. However, the monument's hours of operation would limit regular use of the trail to daylight hours when bats are not active. Implementation of Alternative 2 is not likely to adversely affect special status bat species.

Western burrowing owls could be present in areas with prairie dog colonies. If prairie dog burrows are present in the area of proposed trail construction or any other proposed activity, surveys would be conducted prior to any disturbance to ensure avoidance of active burrowing owl nests. If nests are found, further consultation with the U.S. Fish and Wildlife Service would occur prior to any such undertaking to identify appropriate mitigation measures and ensure that negligible to minor adverse impacts occurred. Through consultation and mitigation, burrowing owls are not likely to be adversely affected by this alternative.

Special status avian species that may use riparian habitats along the Animas River would not be affected by the proposed trail construction or its related use. Any adverse impacts from trail construction along the Farmers Ditch would be short term and negligible to minor and would not likely adversely affect avian special status species such as the bald eagle, southwestern willow flycatcher, black tern, or yellow-billed cuckoo. Use of the trail would not likely adversely affect these species because of limited or controlled visitor use.

Regular use of the monument by peregrine falcons is unlikely. They would not be adversely impacted and would experience no more than negligible impacts from trail construction.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future activities that could affect special status species include oil and gas development inside and outside the monument, residential development on the monument boundary, and trail construction by the city along the Animas River. Ongoing energy and residential development are most likely the greatest threats as they create disturbance and disturb habitat both in the short and long terms. The intensity of the impact would be minor and, with proper mitigation measures, would most likely not adversely impact any of the listed species. Therefore, these impacts when combined with the short-term and long-term, minor, adverse impacts of Alternative 2 would result in long-term, minor, adverse cumulative impacts.

### **Conclusion**

Construction activities related to the trail to East Ruin and North Ruin would result in short-term, negligible to minor, adverse impacts and would not likely adversely affect any special status species. Cumulative impacts would be long term, minor, and adverse. There would be no impairment of the monument's special status species, and its implementation would not result in any unacceptable impacts and is consistent with §1.4.7.1 of *NPS Management Policies 2006*.

## VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES

### Impact Analysis

Implementation of Alternative 2 would improve the quality of the visitor experience offered at Aztec Ruins National Monument. The construction of the trail would create a greater opportunity to experience the East Ruin, North Ruin, North Mesa, and associated resources. The trail would also provide access to overlook points, providing new opportunities for visitors to appreciate the view within and outside the monument. Thus, the trail would result in long-term, moderate, beneficial impacts to visitor experience through these increased opportunities.

In contrast, the addition of the new trail would cause visual impacts on the landscape, as well as from visitors using the trail, and result in long-term, minor to moderate, adverse impacts to the visitors and the viewshed. The trail would be sited with these concerns in mind to minimize impacts.

Architectural modifications to the Aztec Ruins Trading Post, such as flattening the existing roof, restoring the historic façade, and removing the doublewide administration trailer, would have long-term, moderate, beneficial impacts on the historic viewshed and to those visitors viewing the prehistoric scene. Impacts to the prehistoric scene or viewshed would be minimized by structural alterations that would assimilate the remaining buildings into the surroundings. Removal of the administration trailer and renovation of the trading posts would have also long-term, moderate, beneficial impacts to some visitors and occupants since the adaptively reused buildings would be accessible for disabled visitors.

The new interpretive focus that expands beyond the West Ruin to other areas of the monument would increase the number of visitors having firsthand experiences of more resources in the monument and more monument stories. Increased interpretation of more resources would lead to increased visitor understanding and appreciation of monument resources. The available methods of learning about the monument and related resources would also increase, and museum exhibits would be updated to reflect the expanded focus of monument resources. This increased access to resources combined with more effective interpretation would result in short- to long-term, moderate, beneficial impacts to interpretive and educational opportunities and for visitor understanding and appreciation.

Removal of the pear and apple orchards and other ornamental vegetation would result in long-term, moderate, beneficial impacts on visitor enjoyment. This would result in a landscape that more closely represents a natural scene of native vegetation that might have appeared during the period of Pueblo occupation. Removal of the orchards would also result in long-term, moderate, beneficial impacts on visitor understanding of the most important cultural landscape in the monument — the Prehistoric Designed Landscape. The ability of visitors to explore and make personal connections with the ruins and the Prehistoric Designed Landscape could be improved by the removal of the orchards. Native vegetation would provide a more appropriate backdrop for appreciation and interpretation of the ruins.

Any remaining features of the Historic Vernacular Landscape, such as the farmsteads and other deteriorating structural remains, would continue to be a distraction for visitors viewing the Prehistoric Designed Landscape. However, other structures in the Historic Vernacular Landscape, such as the drainage pond and lateral drainage ditches, are not as much of a distraction. Therefore, some long-term, minor, adverse impacts would result to visitor experience from these continued distractions.



Conversely, removal of the orchards could also result in a long-term, negligible, adverse impact on visitor understanding of the Historic Vernacular Landscape. Many other opportunities exist locally to compare and contrast how different peoples interacted with their environment and to connect with a relatively recent historic period of the agricultural landscape.

Ongoing partnerships with local organizations and educational programs by the National Park Service within the local community, as staff is available, would provide for better understanding of monument resources. These educational opportunities would enhance the experience of local citizens when they visit Aztec Ruins, as well as promote its stewardship, because they will better understand the monument's history. This enhanced understanding would result in long-term, minor, beneficial impacts.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future projects would be the same as in Alternative 1. Ongoing oil and gas well development within and outside the monument would adversely impact visitor experience because of the potential viewshed impacts. However, existing regulations would minimize these impacts within the monument, where possible, and work to ensure visual and other characteristics of the prehistoric designed landscape are preserved for visitor enjoyment. Potential residential development outside the monument also threatens the prehistoric scene. Because of the proximity of oil/gas and residential development to the new trail and North Ruin, the impacts to visitors from observing this development would most likely be long term, minor to moderate, and adverse.

Reasonably foreseeable future actions that are being undertaken by the city and would most likely affect visitors include the extension of Main Street and the trail system along the Animas River. Both actions would provide access to new visitor opportunities outside the monument, such as walking and biking, which could ultimately connect with the monument and result in long-term, minor to moderate, beneficial impacts for area visitors.

When combined with the predominately beneficial impacts of Alternative 2, long-term, minor adverse to moderate beneficial, cumulative impacts could occur, depending on the proximity and degree of residential and energy development that occurs in the future.

### **Conclusion**

Long-term, minor to moderate, beneficial impacts would occur to the visitor experience from development of the new trail; expanding the interpretive and educational focus for visitors beyond the West Ruin to other resources; removing the administration trailer and rehabilitating the Aztec Ruins and Kiva Trading Posts; and removing the pear and apple orchards and other ornamental vegetation that detracts from the Prehistoric Designed Landscape. Long-term, minor, beneficial impacts would also occur with the outreach and community partnership program. Cumulative impacts would range from long term, minor adverse to moderate beneficial, depending on the degree of future development outside the monument boundaries.

## **SOCIOECONOMIC ENVIRONMENT**

### **Impact Analysis**

**Local Economy.** Although the interpretive focus of the monument would broaden and visitors would be able to experience and learn about more of the ruins and other resources

at the monument, visitation would most likely remain the same as in Alternative 1. Increased visitor opportunities would not necessarily be known to potential visitors until they arrived at the monument. Although visitors might stay longer at the monument because of these new opportunities, visitation would remain at current levels in the short term. Visitors might stay a few hours longer within the local area, resulting in some increased expenditures related to meals and other daily needs; however, overnight stays would most likely not increase. As indicated in Alternative 1, long-term trends would depend largely on national and regional economic conditions. Thus, in the short term, visitor spending in the Aztec area would be similar to values reported in 2003 and 2007, approximately \$1.16 to \$1.3 million. This visitor spending would continue to result in short-term and long-term, minor, beneficial impacts to the local economy. However, if visitor use declined, local revenues attributable to visitor spending would also decline.

Similar to Alternative 1, ongoing monument operations, including repair and rehabilitation projects and the rehabilitation of the Kiva Trading Post would result in short-term and long-term beneficial impacts to the local economy because of expenditures related to supplies, construction materials, and local labor. However, in Alternative 2, the additional labor and expenditures for materials and equipment associated with construction of the trail, rehabilitation of the Aztec Ruins Trading Post, and removal of the administration trailer would result in some additional economic benefits. Short-term, minor, beneficial impacts would result from these combined construction activities. Current and new staff proposed under this alternative would also continue to contribute to the local economy in a long-term, negligible, but beneficial way through their expenditures for housing, food, and other daily and long-term needs within the local and regional area.

**Adjacent Land Use.** The rehabilitation of the trading posts and other construction activities could result in some additional traffic and noise in the short term, resulting in negligible, adverse impacts to adjacent landowners, owing to the proximity to the new facility. The new interpretive trail to North Ruin would bring visitors closer to the northern boundary, where residential development could occur, however, this would not impact residents. Landowners would most likely continue to benefit from the proximity of the monument to their lands.

### **Cumulative Impacts**

Present and reasonably foreseeable future projects that could contribute to cumulative impacts would be the same as in Alternative 1 and include ongoing oil and gas operations, the proposed residential development adjacent to the monument, the updated comprehensive land use plan, and creation of the city trail and related parking. All of these operations and projects, if instituted and/or approved by the City of Aztec, would be for the purposes of expanding the local economy and generating additional revenues. Residential construction near the monument could result in potentially new families moving into the area and spending their dollars within the local economy. Similarly, the new trail along the Animas River could provide new recreational opportunities for visitors to the area, potentially increasing the length of stay for many visitors and their related expenditures within the local community. The comprehensive plan for the city would continue to foster a positive environment for economic growth. In part or in whole, these projects would result in long-term, minor, beneficial impacts to the local economy. Despite increased visitation or population, the range of dining, lodging, or retail opportunities would remain limited.

These impacts when combined with the short-term and long-term, negligible to minor, beneficial impacts of Alternative 2 would result in minor, beneficial cumulative impacts in the long term.

## Conclusion

Although visitor opportunities would be expanded at the monument, visitation levels would remain similar to current levels and visitor's length of stay would not increase substantially. Thus, visitor spending would most likely remain at current levels, resulting in short-term and long-term, minor, beneficial impacts to the local economy. Ongoing monument operations, current employee spending, and an increased number of short-term construction projects would also contribute to the local economy, resulting in short-term and long-term, minor, beneficial impacts. Impacts to adjacent landowners would be short term, negligible to minor, and adverse. Cumulative impacts would be long term, minor, and beneficial.

## MONUMENT OPERATIONS

### Impact Analysis

**Facilities.** The use of the rehabilitated Aztec Ruins and Kiva Trading Posts for additional and more efficient offices and workspace would result in long-term, moderate, beneficial impacts. These buildings would benefit monument operations by adding useable facilities for functions such as cultural resources offices, work space, laboratories, and administrative offices.

The adaptive reuse of the buildings would pose risks to those involved in renovation of the buildings from potential exposure to hantavirus, lead paint, and other hazards. The resulting short-term, negligible, adverse impacts would be mitigated by hiring construction professionals who are experienced with such issues.

The new trail to the North Ruin and East Ruin would create the potential for people to wander off trail and onto unstable ruins. Hazards associated with the trail could include level of exertion, ease of emergency response, and natural elements such as sun and lightning. Mitigation would occur through the education of visitors and staff patrols. Risks associated with the new trail would result in short-term, negligible, adverse impacts on public health and safety.

**Staffing and Administrative Efficiency.** Short-term, minor, adverse impacts to operations would occur to staff managing or involved in construction of new facilities. Long-term, minor, adverse impacts could result from increased needs for protection along new trails and throughout the monument; maintenance of renovated buildings and new trails; broadening of preservation and other cultural resource activities; security concerns and emergency response; and increased compliance activities. The new trail would help to facilitate management of more remote areas of the monument, resulting in some beneficial impacts. Mitigation would include hiring of additional staff, if possible, and acquisition of project funding. Alternative 2 could be implemented over an extended time period and to a limited degree as opportunities present themselves and staffing allows.

Maintenance of the new trail would also be necessary, requiring new skills and tools at the monument. The trail would create the need for increased resource protection and additional areas with interpretive functions, including media. The new trails would have long-term, minor, adverse impacts on operations and administrative efficiency. Any impacts could be mitigated through shared services in the Eastern Four Corners Group of the National Park Service.

The outreach program would continue to stretch staff and could reduce their overall efficiency because of the limited number of staff available to address visitor use and resource management needs, as well as interact within the community. These competing demands both within the

monument and outside the monument would result in long-term, minor to moderate, adverse impacts to monument operations.

Removal of the pear and apple orchards would result in some short-term, minor, adverse impacts to staff time while managing the removal operation, as well as long-term, moderate, beneficial impacts on monument operations because it is less expensive to maintain native vegetation than pear orchards. In addition, there would be a long-term, minor, beneficial impact on the ability to identify, monitor, and conduct research on prehistoric cultural resources.

**Conservation Potential.** Rehabilitation of the Kiva and Aztec Ruins Trading Posts and associated new construction would have short-term, moderate, adverse impacts during construction due to energy consumed by construction equipment. Conservation potential realized through adaptive reuse of the trading posts would result in long-term, moderate, beneficial impacts due to the potential for installing energy- and water-efficient building systems, using state-of-the art heating, ventilation, and air condition systems, lights that operate on sensors, and low-flow fixtures.

Rehabilitation of the trading posts, removal of the administration trailer, and construction of the trail would require energy use, resulting in short-term, minor, adverse impacts. All construction and rehabilitation activities would use recycled materials and employ mitigation techniques such as erosion and sediment control.

### **Cumulative Impacts**

Similar to Alternative 1, past and present activities that affect monument operations include the expansion of the monument boundaries that occurred in 1988 and current and ongoing oil and gas operations. These activities required and continue to require additional staff time to manage resources within the expanded monument boundary and to identify and address potential impacts and needed mitigation associated with oil and gas wells. Thus, long-term, moderate, adverse impacts to monument operations have resulted.

Reasonably foreseeable future activities include the trail along the Animas River that may be designed and built by the city of Aztec. Because visitors using the trail would enter the monument ruins through the visitor center, no new impacts are anticipated.

These impacts combined with the beneficial impacts of the building rehabilitations and the adverse impacts associated with new demands on staff of Alternative 2 would result in long-term, minor, adverse cumulative impacts on monument operations.

### **Conclusion**

The rehabilitated Aztec Ruins and Kiva Trading Posts would result in long-term, moderate, beneficial impacts to monument operations because of increased space for staff and monument needs. Some short-term, minor, adverse impacts would occur during facility construction. The new trail to North and East Ruins, continued outreach activities, and increased need for visitor and resource protection, among other needs, would result in long-term, minor, adverse impacts on staff efficiency. Cumulative impacts would be long term, minor, and adverse.

## IMPACTS OF ALTERNATIVE 3: PREFERRED ALTERNATIVE

### CULTURAL RESOURCES

#### ARCHEOLOGICAL RESOURCES

##### Impact Analysis

Impacts to archeological resources would be predominately the same as under Alternative 2, with the addition of a few new impacts that are attributable only to Alternative 3. These are related to a new cultural activities center and a new partnership approach that would benefit resources.

The impacts that are common to all three alternatives include the following:

The West Ruin would continue to experience long-term, moderate, beneficial impacts from the continued emphasis on preservation activities, such as inventory and monitoring, backfill and fill level adjustment, stabilization, and research. Some long-term, minor, adverse impacts would also occur because ruins stabilization and backfilling would both add modern materials such as new mortar and back dirt to the West Ruin. Heavy visitation to West Ruin could also result in long-term, minor, adverse impacts that include potential vandalism, climbing on walls, and illegal collection of artifacts. Impacts could be mitigated through ongoing management, survey, and evaluation, and the use of established trails to prevent impacts from exceeding minor levels.

The North Mesa could also suffer long-term negligible to moderate adverse impacts due to pot hunting, all-terrain vehicle traffic, and other ground-disturbing activities. Social trails are currently developing as a result of periodic visitation to this area.

The rehabilitation of the Kiva Trading Post to provide for cultural resource needs, including a place to wash, dry, and prepare artifacts for curation, would result in long-term, minor, beneficial impacts by facilitating the preservation process.

Impacts that would only occur in Alternatives 2 and 3 include:

Cyclic maintenance projects and preventive and proactive ruins stabilization activities would be expanded to include cyclic preservation at East Ruin and other significant archeological sites throughout the monument resulting in long-term, moderate, beneficial impacts. Similar to West Ruin, some long-term, minor, adverse impacts would also occur related to the addition of modern materials. Ongoing monitoring activities to assess stabilization priorities and periodic condition assessments of archeological sites would be increased, in comparison to Alternative 1, and would result in long-term, minor, benefits to these archeological resources. Additionally, emphasis on nonintrusive research methods, like geophysical prospecting, could result in similar benefits to West Ruin, East Ruin, and throughout the monument.

Trail construction activities and use by visitors could cause long-term, minor, adverse impacts to North Ruin and East Ruin due to potential disturbance by visitors. Similarly, documented archeological resources outside of the main West, East, and North Ruin



complexes could also be disturbed by visitors who wander off the trail. However, the implementation of mitigation and protection measures would help ensure that impacts are limited. Such measures could include routing the trail to avoid fragile archeological resources, while also allowing for visitors to experience the ruins, preconstruction treatments such as data recovery, monitoring of construction activities to protect known and unknown archeological resources, and allowing visitors out to the East Ruin and North Ruin only on ranger-led tours. The exact location of the trail and specific mitigation measures would be determined during future planning, design, and compliance activities specifically for the trail and to minimize impacts to archeological resources. Information collected through mitigation efforts would have a long-term, minor to moderate, beneficial impact on the knowledge base used to manage the resource.

Removal of the pear and apple orchards would have a long-term, minor, beneficial impact on subsurface archeological sites because of the elimination of groundwater saturation resulting from irrigation practices related to the orchards.

Implementation of Alternative 3 would result in construction of a new cultural activities center in conjunction with the new administrative facilities in the Aztec Ruins Trading Post. Demonstration farming based on traditional Native American agriculture would be located near the cultural activities center in an area where no significant archeological resources have been identified. No impacts would occur to archeological resources within this area because it has been previously tested and is currently developed. With any new construction, archeological monitoring would be conducted.

The cultural activities center and the enhanced partnership and outreach opportunities promoted by Alternative 3 would result in long-term, beneficial impacts to archeological resources that could range from minor to moderate. An increasing number of formal opportunities would be available for the following: partnering with other parks and foundations, community outreach, volunteer programs, sharing information on preservation, memorandums of agreement, research partnerships, and other collaborative activities. These opportunities would benefit monument archeological resources by developing increased research opportunities, protection of sites, and resource stewardship. This partnering focus would also result in the potential for long-term, minor to moderate, beneficial impacts to archeological resources outside monument boundaries on a regional and national scale.

### **Cumulative Impacts**

Impacts from past, present, and reasonably foreseeable future projects would be the same as in Alternatives 1 and 2. In summary, long-term, moderate, beneficial impacts have occurred due to past preservation activities at West Ruin. Long-term, minor, adverse impacts have resulted from past residential and oil/gas development and would result from current and future oil and gas wells within the monument. Existing regulations (36 CFR Part 9B) would help ensure that new wells within the monument would be placed and operated to avoid and protect monument resources.

When combined with the many long-term, beneficial and adverse impacts of Alternative 3, these past, present, and reasonably foreseeable future projects would result in long-term, minor to potentially moderate, beneficial cumulative impacts to archeological resources because there would be ongoing protection within the monument and increased communication and

collaboration with outside agencies and other groups to protect important local archeological resources.

### Conclusion

The new cultural activities center at the Aztec Ruins Trading Post and the enhanced partnership and outreach opportunities would result in long-term, minor to moderate, beneficial impacts to archeological resources. Similar to Alternative 2, preservation activities in Alternative 3 would be expanded throughout the monument, resulting in long-term, minor to moderate, beneficial impacts to archeological resources. New trail construction and related visitor use would have long-term, minor, adverse impacts to East Ruin, North Ruin, and other archeological resources. Inventory, monitoring, nonintrusive research, and rehabilitation of the Kiva Trading Post would result in long-term, minor, beneficial impacts. Cumulative impacts would be long term, beneficial, and would range from minor to moderate. There would be no impairment of archeological resources from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### Section 106 Summary

As part of the GMP process, Aztec Ruins National Monument's cultural resource staff has identified NRHP-eligible or -listed cultural resources that could potentially be affected by the proposed action and has completed a preliminary analysis to determine potential impacts to cultural resources, including archeological resources. Table 10 provides a summary of this preliminary analysis that identifies the archeological resource or cultural landscape that may be impacted, site number, action or treatment, potential mitigation, and further Section 106 actions that would be required. This table is not intended to fulfill Section 106 requirements.

Prior to implementing any of the actions described in Alternative 3, Aztec Ruins National Monument's cultural resource staff, in consultation with the New Mexico State Historic Preservation Officer, would reconfirm (see Table 10) or identify additional NRHP-eligible or -listed archeological resources that could potentially be affected by the proposed action and apply the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), to determine whether or not the proposed action would adversely impact archeological resources. If it is determined that the proposed action would adversely impact NRHP-eligible or -listed cultural resources, monument staff would prepare an environmental assessment to analyze the impacts of the action on the monument's cultural and natural resources, as well as negotiate and execute a memorandum of agreement with the New Mexico State Historic Preservation Office, in accordance with 36 CFR Part 800.6[c], *Resolution of Adverse Effects — Memorandum of Agreement*, to stipulate how the adverse effects would be minimized or mitigated.

If it is determined that any of the proposed actions would have *no adverse effect* on NRHP-eligible or -listed cultural resources, monument staff would document this determination on an assessment of effect form and forward the form to the New Mexico State Historic Preservation Office.

**Table 10. Effects on Cultural Resources**

RESOURCE	SITE #	ACTION/ TREATMENT	EFFECT	MITIGATION	FURTHER 106 ACTIONS	REMARKS
<b>Aztec West Ruin</b>	LA 45	Continue preservation, visitation, etc., with emphasis on partnering and collaboration.	No Adverse Effect	Continuing work will meet Secretary of Interior's Standards for Preservation and Vanishing Treasures preservation guidelines.	Ongoing periodic consultation with State Historic Preservation Office and tribes for information and review purposes.	Alternative 3 provides opportunities for increased research and collaboration with non-National Park Service parties.
<b>Aztec West Ruin</b>	LA 45	Backfilling and fill levels adjustment.	No Adverse Effect	Intensive architectural and photo documentation, archeological monitoring, project design to maintain and enhance visitor experience, testing and any further excavation will meet Secretary's Standards for Archeology and Historic Preservation.	Test excavations have been conducted under approved testing plan (2008), providing basis for ongoing consultation with State Historic Preservation Office and tribes on development of final treatment plan for comprehensive Fill Levels Adjustment Project.	Purpose and need for West Ruin Backfill Project were identified in 1989 GMP; General Backfilling Plan (1997) and Backfill Adjustment Plan (2004) have previously been reviewed by the State Historic Preservation Office and tribes prior to implementation; Testing Plan for Fill Levels Adjustment reviewed by State Historic Preservation Office and tribes before consultation; next phase subject to continuing consultation and compliance.
<b>West Ruin Annex</b>	LA 45	Removal of pear orchard on Hubbard farmstead.	No Adverse Effect	Archeological monitoring during tree removal.	Consultation with State Historic Preservation Office required.	Subsurface extent of archeological resources in Annex is uncertain; planting and growth of trees has probably impacted features to west of structures excavated by American Museum of Natural History.
<b>Aztec East Ruin</b>	LA 45	Continue preservation, with emphasis on partnering and collaboration.	No Adverse Effect	Continuing work will meet Secretary's Standards for Preservation and Vanishing Treasures preservation guidelines.	Ongoing periodic consultation with State Historic Preservation Office and tribes for information and review purposes.	Alternative 3 provides opportunities for increased research and collaboration with non-National Park Service parties.
<b>Aztec East Ruin</b>	LA 45	Backfilling and fill levels adjustment.	No Adverse Effect	Intensive architectural and photo documentation, archeological monitoring, project design to maintain and enhance visitor experience, any testing and excavation will meet Secretary's Standards for Archeology and Historic Preservation.	Consultation with State Historic Preservation Office and tribes must be initiated; development of East Ruin backfilling and fill levels adjustment plans would be done based on future consultation.	This action would involve project comparable to that under way at West Ruin, but it would be much smaller in scale because there is much less exposed architecture at East Ruin.

**Table 10. Effects on Cultural Resources**

RESOURCE	SITE #	ACTION/ TREATMENT	EFFECT	MITIGATION	FURTHER 106 ACTIONS	REMARKS
<b>Aztec East Ruin</b>	LA 45	Interpretive Trail construction and increased visitation.	No Adverse Effect	Archeological mitigation through intensive surface documentation, surface artifact collections and baseline data for surface density, possible data recovery depending on exact trail route selected, archeological monitoring of trail construction periodically to assess visitor impacts.	Consultation with State Historic Preservation Office and tribes must be initiated; treatment plan for archeological mitigation to be designed incorporating future consultation.	Trail design and construction plans have not been developed; trail route described in GMP is a general concept that will be refined to provide positive visitor experience with minimal impact to archeological resources; more intensive preservation effort as part of Alternative 3 would ensure that fragile standing architecture at East Ruin is stable before visitation is increased.
<b>Aztec North Ruin</b>	LA 5603	Interpretive Trail construction and increased visitation.	No Adverse Effect	Archeological mitigation through intensive surface documentation, surface artifact collections and baseline data for surface density, possible data recovery depending on exact trail route selected, archeological monitoring of trail construction periodically to assess visitor impacts.	Consultation with State Historic Preservation Office and tribes must be initiated; treatment plan for archeological mitigation to be designed incorporating future consultation.	Trail design and construction plans have not been developed; trail route described in GMP is a general concept that will be refined to provide positive visitor experience with minimal impact to archeological resources.
<b>Ancient Aztec Community cultural landscape</b>	Numerous	See above	No Adverse Effect	See above	See above	Sites identified above and many additional cultural landscape features are affected by actions described in GMP; in addition to sites, the Interpretation Trail construction, increased visitation, and orchard removal would have effects on non-site cultural landscape resources.

## CULTURAL LANDSCAPES

### Impact Analysis

Impacts to cultural landscapes are the same as under Alternative 2, except for additional impacts associated with the cultural activities center that would be constructed in conjunction with the Aztec Ruins Trading Post. Impacts to cultural landscapes in Alternatives 2 and 3 are described as follows.

A hierarchy of importance would be established for the overlapping cultural landscapes. This hierarchy would facilitate and enhance the preservation and management of the two NRHP-eligible landscapes — the Prehistoric Designed Landscape (first priority) and the Historic Designed Landscape (second priority). Because it is not eligible for the NRHP, features of the Historic Vernacular Landscape that either conflict with or degrade the two primary landscapes would be considered for removal. As features in the Historic Vernacular Landscape are evaluated and potentially removed using these priorities, the integrity of the Prehistoric Designed Landscape would be improved, resulting in long-term, moderate, beneficial impacts over time.

Specifically in this plan, removal of the pear and apple orchards, all other fruit trees, and ornamentals (roses and lilacs) associated with the Historic Vernacular Landscape would eliminate a noticeable distraction on the Prehistoric Designed Landscape and result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape. Other

conflicting features of the Historic Vernacular Landscape would be evaluated in the vegetation and cultural landscapes management plan or on a case-by-case basis. Although the pear and apple orchards are contributing features to the Historic Vernacular Landscape, this landscape is ineligible for the NRHP. Therefore, the removal of the orchards would result in long-term, negligible, adverse impacts.

The restoration and maintenance of native vegetation throughout the monument would also contribute to restoration of the ancient Pueblo scene. This would further contribute to long-term, moderate, beneficial impacts by further enhancing the integrity of the Prehistoric Designed Landscape.

The proposed trail to the North Ruin and East Ruin would result in long-term, minor, adverse impacts on the Prehistoric Designed Landscape and the Historic Vernacular Landscape because it introduces a new element that would visually intrude upon these landscapes. Bridges would be constructed where the trail crosses the Farmers Ditch, a contributing feature of the Historic Vernacular Landscape, resulting in long-term, minor, adverse impacts to the integrity of the historic ditch.

In Alternative 3, adaptive reuse and rehabilitation of the Aztec Ruins Trading Post would result in long-term, moderate, beneficial impacts to the Historic Designed Landscape because the exterior would be rehabilitated to be compatible with character of the district. However, the size of the facility (6,000 square feet) would be larger than the 2,713 square feet of the current building. This increased size would be offset by its lower-profile design and would occur in a previously disturbed area, resulting in long-term, negligible, adverse impacts to the landscape. Demonstration farming based on traditional Native American agriculture has the potential for long-term, minor, adverse impacts on Prehistoric Designed Landscape because it would occur within and be visible in the landscape.



Infrastructure associated with adaptive reuse and renovation of the Kiva Trading Post such as parking and lighting may have long-term, minor, impacts on the Historic District. These impacts could be beneficial or adverse, depending on design. Impacts would be minimized through designs that blend in or complement the Historic District. Removal of the administration trailer would have long-term, negligible, beneficial impacts on all three landscapes.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future activities would be the same as described in Alternatives 1 and 2. Past preservation activities at West Ruin have resulted in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape. These activities also include ongoing oil and gas well development that has adversely affected the Prehistoric Designed Landscape and development of recreational vehicle parking and location of the administration buildings that have adversely impacted the Historic Designed Landscape. These projects have resulted in long-term, minor, adverse impacts. When combined with the long-term, negligible to moderate, beneficial impacts and minor, adverse impacts of Alternative 3, cumulative impacts would be long term, moderate, and beneficial.

### **Conclusion**

Removal of the pear and apple orchards would result in long-term, moderate, beneficial impacts to the Prehistoric Designed Landscape and long-term, negligible, adverse impacts to the Historic Vernacular Landscape. Other contributing features to the Historic Vernacular Landscape that conflict with NRHP-eligible landscapes would be evaluated for retention or removal on a case-by-case basis or through other plans. The trail would cause long-term, minor, adverse impacts to the Prehistoric Designed Landscape. Rehabilitation of the Aztec Ruins and Kiva Trading Posts and removal of the administration trailer would result in long-term, negligible to moderate, beneficial impacts to the Historic Designed Landscape. Cumulative impacts would be long term, moderate, and beneficial. There would be no impairment of cultural landscapes from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### **Section 106 Summary**

As noted in “Archeological Resources” above, Aztec Ruins National Monument’s cultural resource staff has identified NRHP-eligible or -listed cultural resources that could potentially be affected by the proposed action and has completed a preliminary analysis to determine potential impacts to cultural resources, including cultural landscapes. Table 10 provides a summary of this preliminary analysis for the Ancient Aztec Community cultural landscape and archeological resources that are contributing elements to this landscape. The table includes site number, action or treatment, potential mitigation, and further 106 actions that would be required. This table is not intended to fulfill Section 106 requirements.

Prior to implementing any of the actions described in Alternative 3, Aztec Ruins National Monument’s cultural resource staff in consultation with the New Mexico State Historic Preservation Officer would reconfirm (see Table 10) or identify additional NRHP-eligible or -listed cultural landscapes that could potentially be affected by the proposed action and apply the Advisory Council on Historic Preservation’s criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), to determine whether or not the proposed action would adversely impact cultural landscapes. If it is determined that the proposed action would adversely impact NRHP-eligible or -listed cultural resources, monument staff would prepare an environmental assessment to analyze the impacts of the action on the monument’s cultural and natural

resources, as well as negotiate and execute a memorandum of agreement with the appropriate tribal historic preservation office, in accordance with 36 CFR Part 800.6[c], *Resolution of Adverse Effects — Memorandum of Agreement*, to stipulate how the adverse effects would be minimized or mitigated.

If it is determined that any of the proposed actions would have *no adverse effect* on NRHP-eligible or -listed cultural resources, monument staff would document this determination on an assessment of effect form and forward the form to the appropriate tribe for review and comment, as well as inform the New Mexico State Historic Preservation Office.

## NATURAL RESOURCES

### VEGETATION

#### Impact Analysis

Similar to Alternative 2, removal of the pear and apple orchards would have long-term, moderate, beneficial impacts on native vegetation regimes because nearly four additional acres of nonnative vegetation would be replanted with native vegetation once the nonnative orchards are removed. Additional native vegetation would be restored and maintained throughout the entire Prehistoric Designed Landscape, resulting in additional beneficial impacts.

Construction of the trail to the East Ruin and North Ruin through the Aztec North Mesa Archeological District would have long-term, minor, adverse impacts to vegetation along the trail alignment from the replacement of native vegetation with trail surface. Because connections to a proposed community trail along the Animas River would be possible in this alternative, construction of this trail connection would result in additional long-term, minor, adverse impacts to vegetation, especially along the riparian corridor of the Animas River. Adverse impacts could also result from the encroachment of exotic species in some vulnerable areas because of ground disturbance. Mitigation actions such as weed control would minimize these impacts and keep them at a minor level.

The areas in vicinity of the Kiva and Aztec Ruins Trading Post, including the new cultural activities center, have been previously disturbed; therefore, no new vegetation impacts would occur in the immediate vicinity of these buildings. Staging for all construction activities would also occur in a previously disturbed area and would be properly mitigated per the measures outlined in Chapter 2.

Implementation of demonstration farming plots would have long-term, negligible to minor, adverse impacts to existing vegetation. Impacts to native vegetation would likely be kept at negligible levels because of the disturbed nature of the proposed location(s) for the farming plots.

#### Cumulative Impacts

Past, present, and reasonably foreseeable future activities would be the same as described in Alternatives 1 and 2. Selective clearing of unnatural concentrations of vegetation per the *Fire Management Plan* could result in some minor, beneficial impacts to native vegetation. Habitat loss and fragmentation has and will continue to occur because of residential development, oil and gas production, and new city projects such as trails outside the monument, all resulting in long-term, minor to moderate, adverse impacts. When combined with the long-term, moderate beneficial

and long-term, minor adverse impacts of Alternative 3, these activities would result in long-term, minor, beneficial cumulative impacts.

### **Conclusion**

Removal of nonnative vegetation, such as the pear and apple orchards would result in long-term, moderate, beneficial impacts to vegetation. Some removal of native vegetation because of the trail to North Ruin and East Ruin and potential connections to a river trail would result in long-term, minor, adverse impacts. Because building construction activities would occur in previously disturbed areas, no impacts to vegetation would occur. Cumulative impacts would be minor and beneficial in the long term. No impairment of vegetation resources would occur from this alternative, and its implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### **WILDLIFE**

#### **Impact Analysis**

Impacts to wildlife in Alternative 3 that would be the same as those under Alternative 2 include the following:

The monument would continue to manage for sustainable native wildlife populations with necessary exceptions that allow for the management and protection of cultural resources.

Removal of the nonnative orchards would be consistent with *NPS Management Policies 2006* and Aztec Ruins fundamental resources and values by reestablishing natural functions and processes within the monument, including native plants and animals. Therefore, removal of the orchards would have a long-term, minor, beneficial impact on native wildlife once native vegetation is restored. In the short term, minor adverse temporary impacts would occur to wildlife currently using the orchards for nesting, feeding, or other activities, while they sought similar habitat in new locations. Prior to their removal, the orchards would be surveyed for wildlife, and appropriate methods for removing any nonnative species and protecting native species would be identified.

Disturbance during construction of the trail to the East Ruin and North Ruin would have short-term, minor to moderate, adverse impacts to wildlife such as deer, reptiles, avian species, and others that commonly use the affected habitats. Long-term, minor adverse impacts would result from increased human activity because of trail use. Larger mammals are generally accustomed to human activity, and long-term impacts should be no more than minor to species such as deer and coyote. To smaller species such as reptiles, the trail would be more of an impediment to their movements and may have long-term, minor to moderate, adverse impacts. The potential for impacts would be greatest in the vicinity of the Farmers Ditch, which supplies a source of water and cover to wildlife in the area. Rehabilitation of the trading posts would result in no impacts because of the lack of quality habitat in their vicinity.

Travel patterns of wildlife that tend to follow trail corridors, human scent, or use bridges may be disrupted. Animals that might be affected would include raccoons, feral animals, bobcats, coyotes, and potentially mountain lions. Impacts to these animal travel patterns would be long term, minor, and adverse.

In Alternative 3, potential connection to a community river corridor trail and other community trails would have short-term, minor to moderate, adverse impacts to wildlife and habitat owing to disturbance from construction. Impacts from the use of the trail(s) would be long term,

minor, and adverse to species that are supported by habitat along the river. Mitigation would be developed prior to construction to minimize any impacts to wildlife in riparian or other affected habitats.

The expanded footprint of the Aztec Ruins Trading Post, which would include a new activities center, would have short-term and only negligible, if any, adverse impacts to wildlife and associated habitat. This is because of the proximity of the proposed facility site to existing development and the lack of quality wildlife habitat.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future activities would be the same as those described in Alternative 1. The monument's *Fire Management Plan* could result in some minor, beneficial impacts to native wildlife from vegetation clearing. Other similar contributions to cumulative impacts on area wildlife include habitat loss and fragmentation on surrounding lands because of past, present, and future development and other land uses. Scattered natural gas production, agriculture, and residential and commercial development surround the monument. New residential development is occurring to the north of the monument boundary, and the city is planning to expand its trail system. This could further increase the fragmentation of wildlife habitat and reduce travel corridors available to native wildlife, attract scavenging wildlife, decrease native vegetation, and potentially increase the spread of noxious weeds. This continued habitat loss outside the monument could result in long-term, minor, adverse impacts.

These impacts when combined with the long-term, minor, beneficial and adverse impacts of Alternative 3 would result in long-term, negligible to minor, beneficial cumulative impacts to wildlife in the Aztec area.

### **Conclusion**

Removal of the orchards would have a long-term, minor, beneficial impact on native wildlife once native vegetation is restored. Wildlife would be adversely impacted in the short term because of trail construction activities and in the long term because of trail use by visitors, resulting in minor adverse impacts. Rehabilitation of the trading posts, including the new cultural activities center, would have no impacts because there is a lack of quality habitat in their vicinity. New trails that connect to a proposed community trail could result in some long-term, minor, adverse impacts. Cumulative impacts would be long term, negligible to minor, and beneficial. There would be no impairment of wildlife resources from implementation of this alternative, and it would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

### **SPECIAL STATUS SPECIES**

#### **Impact Analysis**

Impacts to special status species from trail and building construction would be the same as described in Alternative 2, although there would be some additional construction activity in Alternative 3 related to the cultural activities center and the potential trail connection with the proposed community river trail.

Trail construction in the vicinity of the Farmers Ditch could affect special status bat species that feed over the water. However, bats are not likely to be feeding during daylight when construction would occur; thus, these impacts would be minimal. Short-term, minor, adverse impacts to special status bat species could also result from periodic disturbance from visitor use of the trail. However, the monument's hours of operation would limit use of the trail to daylight hours when

bats are not active. Implementation of Alternative 3 is not likely to adversely affect special status bat species.

Any impacts to avian species from trail construction along the Farmers Ditch would be short term and negligible to minor and would not likely adversely affect avian special status species such as the bald eagle, southwestern willow flycatcher, black tern, or yellow-billed cuckoo. Use of the trail would not likely adversely affect these species because of limited and controlled visitor use.

A potential trail connection to a community river corridor trail and other community trails would have short-term, minor, adverse impacts to wildlife and habitat because of disturbance from construction. Impacts from the use of the trail(s) would be long term, minor, and adverse to species that are supported by habitat along the river. The need for surveys for special status species would be evaluated prior to construction in the riparian community along the Animas River. This, in addition to other mitigation that would be developed prior to construction would not allow effects to wildlife in riparian or other affected habitats to be more than minor and would make adverse impacts to special status species unlikely.

Western burrowing owls could be present in areas with prairie dog colonies. If prairie dog burrows are present in the area of proposed trail construction or any other proposed activity, surveys would be conducted prior to any disturbance to ensure avoidance of active burrowing owl nests. If nests are found, further consultation with the U.S. Fish and Wildlife Service would occur prior to any such undertaking to identify appropriate mitigation measures and ensure that negligible to minor adverse impacts occurred. Because of this consultation and mitigation, burrowing owls are not likely to be adversely affected by this alternative.

Regular use of the monument by peregrine falcons is unlikely. They would not be adversely impacted and would experience no more than negligible impacts from trail construction.

Impacts to special status species from new facility construction would be short term and negligible because of the already disturbed nature of the area and lack of habitat for such species on the proposed site.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future activities that could affect special status species are the same as in Alternatives 1 and 2. They include oil and gas development inside and outside the monument, residential development on the monument boundary, and trail construction by the city along the Animas River. Ongoing energy and residential development are most likely the greatest threats because they disturb habitat both in the short and long terms. The intensity of the impacts would be minor, but would most likely not adversely impact any of the listed species when proper mitigation measures are followed. Therefore, these impacts when combined with the short-term and long-term, minor, adverse impacts of Alternative 3 would result in long-term, minor, adverse cumulative impacts.

### **Conclusion**

Construction activities related to the trail to East Ruin, North Ruin, and potentially the Animas River and the rehabilitation of the Aztec Ruins and Kiva Trading Posts would result in short-term, negligible to minor, adverse impacts and would not likely adversely affect any special status species. Cumulative impacts would be long term, minor, and adverse. There would be no impairment of the monument's special status species from this alternative, and its



implementation would not result in any unacceptable impacts as outlined in §1.4.7.1 of *NPS Management Policies 2006*.

## VISITOR EXPERIENCE AND EDUCATIONAL OPPORTUNITIES

### Impact Analysis

The impacts associated with Alternative 3 would be the same as those under Alternative 2, except the educational opportunities would be greatly expanded as a result of the partnership and outreach program and the new cultural activities center. As described for Alternative 2, implementation of Alternative 3 would also improve the overall quality of the visitor experience offered at Aztec Ruins National Monument. The impacts that are relevant to both Alternatives 2 and 3 include the following.

The construction of the new trail would create a greater opportunity to experience the East Ruin, North Ruin, North Mesa, and associated resources. The trail would also provide access to overlook points, providing new opportunities for visitors to appreciate the view within and outside the monument. Thus, the trail would result in long-term, moderate, beneficial impacts to visitor experience through these increased opportunities. In contrast, the addition of the new trail would cause visual impacts from the trail on the landscape, as well as from visitors using the trail, and result in long-term, minor to moderate, adverse impacts to the visitors and the viewshed. The trail would be sited with these concerns in mind to minimize impacts.

Architectural modifications to the Aztec Ruins Trading Post, such as flattening the existing roof, restoring the historic façade, and removing the doublewide administration trailer would have long-term, moderate, beneficial impacts on the historic viewshed and to those visitors viewing the prehistoric scene. Impacts to the prehistoric scene or viewshed would be minimized by structural alterations that would assimilate the remaining buildings into the surroundings. Removal of the non-ADA compliant trailer and renovation of the trading posts would have long-term, moderate, beneficial impacts to some visitors and occupants who are mobility impaired since the adaptively reused buildings would be compliant with the Americans with Disabilities Act.

Removal of the pear and apple orchards and other ornamental vegetation would result in long-term, moderate, beneficial impacts on visitor enjoyment. This would result in a landscape that more closely represents a natural scene of native vegetation that might have appeared during the period of Pueblo occupation. Removal of the orchards would also result in a long-term, moderate, beneficial impact on visitor understanding of the most important cultural landscape in the monument — the Prehistoric Designed Landscape. The ability of visitors to explore and make personal connections with the ruins and the Prehistoric Designed Landscape could be improved by removal of the orchards. Native vegetation would provide a more appropriate backdrop for appreciation and interpretation of the ruins.

Any remaining features of the Historic Vernacular Landscape, such as the farmsteads and other deteriorating structural remains, would continue to be a distraction for visitors for viewing the Prehistoric Designed Landscape. However, other structures in the Historic Vernacular Landscape, such as the drainage pond and lateral drainage ditches, are not as

much of a distraction. Therefore, some long-term, minor, adverse impacts would result to visitor experience from these continued distractions.

Removal of the orchards could also result in a long-term, negligible adverse impact on visitor understanding of the Historic Vernacular Landscape. Many other opportunities exist to compare and contrast how different peoples interacted with their environment and to connect with a relatively recent historic agricultural landscape.

Under Alternative 3, the interpretive focus of the monument would be expanded beyond West Ruin, as described in Alternative 2, to include resources in a regional context, interpretation of the continuum of history, and occupation of the region. This would lead to a greater understanding and appreciation of monument resources within a regional and historical context. This expanded focus and increased access combined with effective interpretation would result in short- to long-term, moderate, beneficial impacts.

In Alternative 3 only, the addition of a new cultural activities center and new partnerships would provide opportunities for visitors to experience a variety of programs and activities conducted by the National Park Service, tribes, and other partners. An example of such a benefit through partner participation would include the possibility of extending the hours that visitors can enjoy the new trail by having partners available to assist visitors. Collaboration with universities, opportunities for research, and contributions to regional knowledge would also be encouraged, allowing for more knowledge of both the monument and the surrounding culture. Museum exhibits would be updated to reflect regional context. Demonstration farming based on traditional Native American agriculture would be located near the cultural activities to educate visitors. These efforts would result in long-term, moderate, beneficial impacts to educational opportunities and visitor experience. Visitor use might increase as a result of the regional emphasis and greater involvement by tribes and other partners.

The new cultural activities center would also increase the building footprint from approximately 2,713 square feet to approximately 6,000 square feet, resulting in long-term, minor, adverse impacts to visitors viewing the remnants of the prehistoric landscape. The impacts would be mitigated and minimized by creating a sensitive low-profile design, planting trees for screening, and locating the buildings in a developed area. Connections to the potential river corridor trail would also have a negligible effect on the viewshed, because it would be mostly screened by existing vegetation.

Trail connections to the potential river corridor trail would also increase access and opportunities to experience the riparian zone along the Animas River and other portions of the monument, resulting in short- to long-term, minor, beneficial impacts.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable future projects would be the same as in Alternatives 1 and 2. Ongoing oil and gas well development within and outside the monument would adversely impact visitor experience because of the potential viewshed impacts. However, existing regulations would minimize these impacts within the monument where possible and work to ensure visual and other characteristics of the prehistoric designed landscape are preserved for visitor enjoyment. Potential residential development outside the monument also threatens the prehistoric scene. Because of the proximity of oil/gas and residential development to the new trail and North Ruin, the impacts to visitors from observing this development would most likely be long-term, minor to moderate, and adverse.

Reasonably foreseeable future actions that are being undertaken by the city and would most likely affect visitors include the extension of Main Street and the trail system along the Animas River. Both actions would provide access to new visitor opportunities outside the monument, such as walking and biking, which could ultimately connect with the monument and result in long-term, minor to moderate, beneficial impacts for area visitors. When combined with the predominately beneficial impacts of Alternative 3, long-term, moderate beneficial, cumulative impacts could occur.

## **Conclusion**

Similar to Alternative 2, long-term, minor to moderate, beneficial impacts would occur to the visitor experience from development of the new trail, expanding the interpretive and educational focus for visitors beyond the West Ruin to other resources, removing the administration trailer and rehabilitating the Aztec Ruins and Kiva Trading Posts, and removing the pear and apple orchards and other ornamental vegetation that detracts from the Prehistoric Designed Landscape. In Alternative 3, the new cultural activities center and the partnership program would result in long-term, moderate, beneficial impacts because of expanded information sharing and educational opportunities. Some long-term, minor, adverse impacts would occur to the viewshed because of the new facility and trails. Cumulative impacts would be long term, moderate, and beneficial.

## **SOCIOECONOMIC ENVIRONMENT**

### **Impact Analysis**

**Local Economy.** Similar to Alternative 2, the interpretive focus of the monument would broaden and visitors would be able to experience and learn about more of the ruins and other resources at the monument. However, the increased focus on regional resources and partnerships with tribes and other organizations and the addition of the cultural activities center to provide for multiple purposes such as education, demonstrations, and meetings, would most likely increase the visibility of and interest in Aztec Ruins National Monument, resulting in increased annual visitation in the long term. Increased annual visitation coupled with an increased length-of-stay because of the new interpretive trail and expanded interpretive focus would most likely result in visitor spending levels that exceed current levels, resulting in long-term, minor to moderate, beneficial impacts to the local economy. However, similar to Alternatives 1 and 2, long-term trends would also depend on national and regional economic conditions. However, in Alternative 3, the increased number of relationships within the regional area through partnerships, research opportunities, and other programs could help increase the number of local and regional visitors and minimize the effects of these national trends.

Similar to Alternative 2, ongoing monument operations, the rehabilitation of the Aztec Ruins Trading Post and Kiva Trading Post, the construction of the interpretive trail, and the removal of the administration trailer would result in short-term and long-term, minor, beneficial impacts to the local economy because of expenditures related to supplies, construction materials, and local labor. Current and new staff proposed under this alternative would also continue to contribute to the local economy in a long-term, negligible, but beneficial way through their expenditures for housing, food, and other daily and long-term needs within the local and regional area.

**Adjacent Land Use.** Similar to Alternative 2, increased traffic and noise related to construction activities could result in short-term, negligible, adverse impacts. The new interpretive trail to North Ruin and cultural resource demonstrations could increase visitor activity in the vicinity

of the monument boundary where residential development could occur. However, this would not impact residents. The cultural resource demonstration area would have long-term, minor, beneficial impacts to nearby landowners by creating a positive and purposeful use for an open space area that is currently infested with weeds. Overall, adjacent landowners would most likely continue to benefit from the proximity of the monument to their lands.

### **Cumulative Impacts**

Present and reasonably foreseeable future projects that could contribute to cumulative impacts would be the same as in Alternatives 1 and 2 and include ongoing oil and gas operations, the proposed residential development adjacent to the monument, the updated comprehensive land use plan, and creation of the city trail and related parking. All of these operations and projects, if instituted or approved by the City of Aztec, would be for the purposes of expanding the local economy and generating additional revenues. Residential construction could result in potentially new families moving into the area and spending their dollars within the local economy. Similarly, the new trail along the Animas River could provide new recreational opportunities for visitors to the area, potentially increasing the length of stay for many visitors and their related expenditures within the local community. The comprehensive plan for the city would continue to foster a positive environment for economic growth. In part or in whole, these projects would result in long-term, minor, beneficial impacts to the local economy.

These impacts when combined with the short-term and long-term, negligible to moderate, beneficial impacts of Alternative 3 would result in long-term, minor to moderate, beneficial cumulative impacts.

### **Conclusion**

Annual visitation would most likely increase because of the development and promotion of the cultural activities center, increased local and regional partnership opportunities, and the enhanced interpretive and educational focus on regional resources. Thus, visitor spending would most likely increase beyond current levels resulting in long-term, minor to moderate, beneficial impacts to the local economy. Ongoing monument operations, increased employee spending, and an increased number of short-term construction projects would also contribute to the local economy, resulting in short-term and long-term, minor, beneficial impacts. Adjacent landowners would experience short-term, negligible, adverse impacts, as well as long-term, minor, beneficial impacts. Cumulative impacts would be long term, moderate, and beneficial.

## **MONUMENT OPERATIONS**

### **Impact Analysis**

**Facilities.** Similar to Alternative 2, the use of the rehabilitated Aztec Ruins and Kiva Trading Posts for additional and more efficient offices and workspace would result in long-term, moderate, beneficial impacts. These buildings would benefit monument operations by adding useable facilities for functions such as cultural resources offices, work space, laboratories, and administrative offices.

The adaptive reuse of the buildings would pose risks to those involved in renovation of the buildings from potential exposure to hantavirus, lead paint, and other hazards. The resulting short-term, negligible, adverse impacts would be mitigated by hiring construction professionals who are experienced with such issues.

The new trail to the North Ruin and East Ruin would create the potential for people to wander off trail and onto unstable ruins. Other hazards associated with the trail include level of exertion, ease of emergency response, and natural elements such as sun and lightning. Mitigation would occur through the education of visitors and staff patrols. Risks associated with the new trail would result in short-term, negligible, adverse impacts on public health and safety.

In Alternative 3, the new cultural activities center would have long-term, moderate, beneficial, impacts on the availability of facilities within the monument. The new facility would provide opportunities to accommodate a variety of activities for the National Park Service, tribal meetings, and other functions. The creation of this facility would fill a need for meeting/function space in the community.

**Staffing and Administrative Efficiency.** Impacts of Alternative 3 are the same as those for Alternative 2, except for additional impacts related to the cultural activities center and new trail connections. Short-term, minor, adverse impacts to operations would occur to staff managing or involved in construction of new facilities. Long-term, minor, adverse impacts could result from increased needs for protection along new trails and throughout the monument, maintenance of renovated buildings and new trails, broadening of preservation and other cultural resource activities, security concerns and emergency response, and increased compliance activities. The new trail would help to facilitate management of more remote areas of the monument, resulting in some beneficial impacts. Mitigation would include hiring of additional staff, if possible, and acquisition of project funding. Alternative 3 could be implemented over an extended time period and to a limited degree as opportunities present themselves and staffing allows.

Maintenance of the new trail would also be necessary, requiring new skills and tools at the monument. The trail would create the need for increased resource protection and additional areas with interpretive functions, including media. The new trails would have long-term, minor, adverse impacts on operations and administrative efficiency. Any impacts could be mitigated through shared services in the Eastern Four Corners Group of the National Park Service.

Removal of the pear and apple orchards would result in some short-term, minor, adverse impacts to staff time while managing the removal operation, as well as long-term, moderate, beneficial impacts on monument operations because it is less expensive to maintain native vegetation than pear orchards. In addition, there would be a long-term, minor, beneficial impact on the ability to identify, monitor, and conduct research on prehistoric cultural resources.

In Alternative 3, the new cultural activities center and the potential extended trail system would result in additional staffing needs. Increased opportunities for partnerships and collaboration would be pursued, which could result in long-term, moderate, beneficial impacts through information sharing, program efficiencies, and volunteer efforts. These partnerships and collaborations could also have some short-term, minor, adverse impacts while staff develop and administer the programs for educational outreach. Recognizing that partnership programs would require staff time, the net long-term benefit of these programs would remain moderate.

**Conservation Potential.** Impacts would be the same as in Alternative 2, except for the construction and use of the new cultural activities center. These impacts include the following;

Rehabilitation of the Kiva and Aztec Ruins Trading Posts and associated new construction would have short-term, moderate, adverse impacts during construction because of energy consumed by construction equipment. Conservation potential realized through adaptive reuse of the trading posts would result in long-term, moderate, beneficial impacts because of the potential for



installing energy- and water-efficient building systems, using state-of-the art heating, ventilation, air conditioning systems, lights that operate on sensors, and low-flow fixtures.

Rehabilitation of the trading posts, removal of the administration trailer, and construction of the trail would require energy use resulting in short-term, minor, adverse impacts. All construction and rehabilitation activities would use recycled materials and employ mitigation techniques such as erosion and sediment control.

Constructing a new cultural activities center would have short-term, minor, adverse impacts because of energy required by construction equipment and the use of building materials. Conservation potential would be achieved by specifying use of recycled, local, and rapidly renewable materials and by recycling construction waste.

Building a new facility would have long-term, moderate, beneficial impacts because of conservation potential. The new facility would be designed and constructed to be energy efficient or even energy producing. There is an opportunity to demonstrate leadership in energy management to the public as showcased in a new facility or adaptive reuse of an existing facility. This leadership could provide some long-term beneficial impacts on energy and resource conservation in the region. The monument could enhance community awareness about the importance of energy conservation and environmental design.

### **Cumulative Impacts**

Similar to Alternatives 1 and 2, past and present activities that affect monument operations include the expansion of the monument boundaries that occurred in 1988 and current and ongoing oil and gas operations. These activities required and continue to require additional staff time to manage resources within the expanded monument boundary and to identify and address potential impacts and needed mitigation associated with oil and gas wells. Thus, long-term, moderate, adverse impacts to monument operations have resulted.

Reasonably foreseeable future activities include the trail along the Animas River that may be designed and built by the City of Aztec. Because visitors using the trail would enter the monument ruins through the visitor center, no new impacts are anticipated.

These impacts combined with the beneficial impacts of the building rehabilitations, including the cultural activities center and new partnerships, and the adverse impacts associated with new demands on staff in Alternative 3 would result in long-term, minor to moderate, beneficial cumulative impacts on monument operations.

### **Conclusion**

As in Alternative 2, the rehabilitated Aztec Ruins and Kiva Trading Posts would result in long-term, moderate, beneficial impacts to monument operations because of increased space for staff and monument needs. The new trail to North Ruin and East Ruin, continued outreach activities, and increased need for visitor and resource protection, among other needs, would result in long-term, minor, adverse impacts on staff efficiency. However, in Alternative 3, the addition of the new cultural activities center would result in long-term, moderate, beneficial impacts on monument operations by improving community relationships, augmenting staff with volunteers, and strengthening visitor services and protection of resources. Cumulative impacts would be long term, minor to moderate, and beneficial.



## CHAPTER 5: CONSULTATION AND COORDINATION

Information and comments gathered from the scoping brochure, scoping meetings, and consultation with state and federal agencies, among other information resources, were used to develop the alternatives ways of managing Aztec Ruins National Monument.





## SUMMARY OF PUBLIC INVOLVEMENT, INCLUDING SCOPING

The planning process formally began when the notice of intent to prepare an environmental impact statement (EIS) was published in the *Federal Register* on October 8, 2003. As explained later in this section, this EIS was changed to an environment assessment following scoping because it was determined that no significant impacts would occur. Since the notice of intent, public involvement for the *Aztec Ruins National Monument General Management Plan / Environmental Assessment* (GMP/EA) has included:

- Scoping newsletter released in September 2003 to initiate the plan
- Five public and tribal scoping meetings in four different locations in October 2003
- Second newsletter released in January 2004 outlining comments from meetings and describing preliminary planning data
- Public open house at the monument in May 2004 to review draft alternatives for the GMP
- Focus group meeting in November 2004 on potential economic impacts

Since late 2004 when the last formal meetings were held, the National Park Service has continued to provide updates on the status of the Aztec Ruins GMP to tribes, agencies, and inquiring members of the public upon request. Internal delays have slowed the development of this GMP.

A brief summary of each newsletter or meeting is provided below, including comments from the general public, agencies, and tribes. These meetings are summarized in context of the GMP planning process, including scoping and alternatives development.

### SCOPING

To initiate the Aztec Ruins GMP and to engage members of the public, agencies, and tribes in the planning process a scoping brochure (or newsletter) and a series of public meetings were held to introduce the GMP process and to gather comments. Comments collected during this process helped to identify issues and opportunities to be considered in developing alternatives for managing the monument's future.

#### SCOPING NEWSLETTER

A scoping brochure was released in September 2003 that presented the project background and planning interests to be addressed in the GMP, detailed the phases of the planning process, and outlined opportunities to become involved. Comments received include some of the following.

People expressed a desire to find more ways to understand the ancestral Pueblo from the past through today. A three-dimensional model of the monument was suggested to give visitors a better visual perspective of the site. Other suggested maps included an area map and a map of any future excavation areas. People also suggested audio and guided tours as regular options at the monument. Installing wayside signs at various points of interest in the monument was seen as a good way to provide people information while not being intrusive.

Several comments focused on new trail development. There was excitement about the possibility of having features like a native plant path and natural education trails that could include the riparian area along the Animas River.

Connecting the monument to the surrounding community was addressed in numerous comments. One recommended that an educational specialist be hired by the monument to assist in the coordination of educational programs made available by the monument for area schools. Others suggested that the monument host special events, such as the solstices and equinoxes, to encourage more people to visit. Inviting tribes to the monument to demonstrate things like social dancing was another suggestion.

One commenter raised concerns about the stewardship of the new lands acquired by the monument. Lack of regular orchard irrigation, spread of noxious weeds, and the occurrence of trash in the Farmers Ditch were the primary concerns.

### **SCOPING MEETINGS — OCTOBER 2003**

A series of public and tribal information meetings were conducted in October 2003 at various locations in New Mexico. Public information meetings were hosted on October 16 in the City Council Chambers in Aztec and at an open house at the monument on October 18. Meetings with tribal representatives and other members of the public occurred on October 27 in Santa Fe, October 28 in Albuquerque, and October 29 in Gallup. A reoccurring topic in all meetings was interpretation.

Meeting attendees encouraged the expansion of the interpretive emphasis beyond the West Ruins to other areas of the monument, as well as out into the community to promote an awareness of how Aztec Ruins is connected to contemporary native peoples of the Southwest. Individuals were interested in a more diverse range of services, including demonstrations and tours, and more interactive opportunities such as watching stabilization activities or working with educators. The concepts of living community — how the land changes over time — and living culture were also emphasized as important stories to share. Others suggested that sharing of more artifacts and oral traditions could help bridge time between original occupants and today's visitors.

Some encouraged the monument to identify cultural resources, partners, and activities that could support the development of a "Heritage" concept that could be interwoven with monument programs. It was also suggested that the monument develop relationships with interested tribes and invite tribes to demonstrate dances, food preparation, and arts at cultural events.

The importance of good working relationships among the monument, the City of Aztec, and the tribes was also emphasized. Sharing information with others was also discussed in detail. It was suggested that sites ranging from the Indian Pueblo Cultural Center, the University of New Mexico, and local chambers of commerce should be approached by the monument about displays and other types of joint opportunities.

Consultation with the tribes was emphasized on a variety of levels from the formal government-to-government consultation to more informal conversations on a personal level.

### **SECOND NEWSLETTER — JANUARY 2004**

A second newsletter was released in January 2004. It defined what a general management plan is, explained the seven phases of the planning process, summarized public and tribal comments from the series of informational meetings conducted in the fall of 2003, summarized



responses to the September scoping newsletter, summarized the visitor survey (see “Alternatives Development” below), and provided the latest version of the Foundation Statements. Because it summarized the results of previous meetings, public comments were not solicited.

## **ALTERNATIVES DEVELOPMENT**

Information and comments gathered from the scoping brochure and scoping meetings in October 2003, among other information resources, were used to develop the alternative ways of managing Aztec Ruins National Monument. A visitor survey, described below, was also initiated early in the planning process to help identify visitor needs and to ensure these needs were considered in future management strategies.

The alternatives were developed during a series of workshops conducted with monument staff, tribal representatives, and other monument stakeholders. In these workshops, participants were involved in reaffirming the key opportunities and concerns that should be addressed by the GMP, analyzing cultural and natural resources, and reviewing the foundation statements that had been developed earlier in the planning process. This resulted in the creation of management zones, the development of preliminary alternatives, and the identification of partnership opportunities to help implement the alternatives. The management zones and alternatives are presented in Chapter 2, “Alternatives.”

## **VISITOR SURVEY**

From March 2003 through February 2004, Northern Arizona University gathered information on visitors for use in the monument’s general management plan. Over the course of the survey, monument staff distributed 977 questionnaires with 964 returned, for a 99% response rate. Information was gathered on visitor demographics, their reasons for visiting, where they went, high and low points of their visit, and their feelings about how Aztec Ruins is currently and should be managed in the future. This visitor survey information was used in the development of alternatives for management, including programs in interpretation, visitor services, facility development, and resource management. Some of the more relevant comments included the following.

Survey respondents indicated that their stop at Aztec Ruins was one of many stops they were making as part of a larger travel plan, which often include stops to Mesa Verde National Park, Aztec Museum, Chaco Culture National Historical Park, Canyon de Chelly National Monument, or Salmon Ruins. The night before coming to Aztec Ruins, 8% of visitors stay in Aztec and another 62% of visitors stay within forty miles of the monument.

The monument attracts visitors from the surrounding regions, across the country, and internationally. Thirteen percent of visitors were from New Mexico, followed by visitors from California, Texas, and Colorado. Approximately 52% of visitors came from other states throughout the United States. Foreign visitors contribute 4% of the total visitation.

Of those surveyed, 85% were first-time visitors to the monument. Most often, visitors said that their reasons for visiting were to see the archeological ruins, to learn and see how people lived back then, to satisfy curiosity, or to gain a perspective on the present through understanding the past. Some of the most popular activities participated in by visitors while at the monument included walking on the West Ruin Trail, looking at the visitor center exhibits, watching the movie, and browsing the bookstore. Most visitors indicated that crowding was not a concern.

Forty-six percent of visitors indicated that they had either a fairly good or extensive knowledge of the site before arriving at the monument. Fifty-one percent said they had either a somewhat or very limited knowledge prior to their visit.

When asked what type of interpretive/educational opportunities they would like to see at Aztec Ruins, those surveyed indicated interest in the following: self-guided walks (61%), interpretive and educational talks (55%), and museum exhibits and artifacts (54%). Interest in additional opportunities included: self-guided interpretive trails to unexcavated ruins (59%), chances to view more of the prehistoric community (59%), guided tours to unexcavated ruins (53%), and 48% indicated an interest in seeing more of the natural surroundings, including the river, birds, and other wildlife.

#### **PUBLIC OPEN HOUSE — MAY 2004**

On May 1, the monument hosted a public open house to share the results of the Alternatives Workshop. Visitors were invited to review materials and respond. A wide range of comments were received, including the following.

Resource concerns were expressed related to the proper management and watering of the orchards and the suggestion that stabilization was covering too much of the monument area.

Related to trails, commenters suggested that a pedestrian trail along Farmers Ditch and the gas and oil lines be considered as a way for visitors to experience more of the monument. A trail to the East Ruin was also seen as a great chance for visitors to see unexcavated ruins. It was also suggested that more benches and information related to the scene be provided at existing trails. While most people expressed an interest in extended trails, one comment did caution that the preservation of sites should take precedence over risking deterioration of excessive visitation.

There was a concern that visitors may not understand the significance of the Great Kiva. It was suggested that more rangers in the Great Kiva was one way to help share the concept of the “Home of the Great Kiva.” Other ideas included a discussion concerning the great distances over which supplies and materials necessary to build the site were brought, or having people dancing to music in the Great Kiva as an example of traditional dances. Greater use of movies or video (indoors, out of the heat) could also show how people used spaces, how people live here, and what items they used every day.

The need for additional staff was also raised. An educational coordinator could focus on education plans and would be much appreciated by teachers. More tour guides to help people (groups of four or more) were also suggested. It was suggested that the monument should “court the people” to improve community relations and encourage more local involvement.

One commenter was concerned about the effects of city-related development on Aztec Ruins. The commenter indicated that visitors need to be able to make a “spiritual connection” with the monument to ensure that it is preserved and protected, and that development could impact this connection. The monument is the City of Aztec’s biggest draw and must be kept pristine. Other concerns about activities outside the boundary of the monument included possible water contamination from the proposed development north of the monument. There was also concern about potential pollution from the development’s septic systems and about effects to the prehistoric road that extends beyond the monument boundary into this development.

**FOCUS GROUP ON ECONOMICS — NOVEMBER 2004**

A focus group meeting with members of the community was hosted at San Juan College in Farmington, New Mexico, the morning of November 18, 2004, to obtain information relating to potential impacts on the socioeconomic environment and regional understanding and effects on the quality of life of community residents.

**CHANGE FROM ENVIRONMENTAL IMPACT STATEMENT TO ENVIRONMENTAL ASSESSMENT**

It was originally intended to provide an EIS with this GMP. This was so announced in a *Federal Register* notice on October 8, 2003, and via a scoping newsletter. During scoping, the public did not identify issues or concerns that led the planning team to conclude that they would lead to significant impacts on the environment. After public scoping was completed, three alternatives were developed, impacts were assessed, and a proposed action was identified. The impact analysis of the alternatives revealed no significant adverse impacts on the human environment or impairment of monument resources and values.

Because the public did not identify significant impacts and the impacts analysis did not reveal significant adverse impacts, the planning team requested a waiver to prepare an environmental assessment associated with the GMP, rather than an EIS, as provided for in paragraph 4.4 of the Director's Order 12 Handbook. In March 2006, the National Park Service associate director, Natural Resources Stewardship and Science, approved of the request for the waiver. Official notification of the change was printed in the *Federal Register* on April 15, 2009.

**GMP/EA REVIEW**

This GMP/EA will be distributed for public and agency review with a comment period of 60 days. During this period, public meetings or open houses will be provided by the National Park Service to solicit public comment. Additionally, this document will be provided to all state and federal agencies (listed in the next section), individuals, and groups that are participating in planning for the national monument. The National Park Service will consider all comments to verify that an EIS is not needed and to draft a Finding of No Significant Impact (FONSI). The FONSI will be sent to the Intermountain regional director for approval and signature.

## CONSULTATION WITH STATE AND FEDERAL AGENCIES

### ADVISORY COUNCIL ON HISTORIC PRESERVATION AND NEW MEXICO STATE HISTORIC PRESERVATION OFFICER

Consultation was initiated in September 2001 with the New Mexico State Historic Preservation Officer and the Advisory Council on Historic Preservation as stipulated in Section 106 of the National Historic Preservation Act, as amended. Both agencies were notified of the project via letter, copies of which are included in Appendix E. The national monument staff contacted the state historic preservation officer again in September 2003 to invite them to participate in the public and agency scoping meetings held throughout New Mexico in late October 2003. The State Historic Preservation Officer and their staff participated and provided comments in the scoping meeting held in Santa Fe on October 27, 2003.

As noted in Chapter 4, the National Park Service does not intend to use the National Environmental Policy Act process and documentation to comply with Section 106 of the National Historic Preservation Act for specific projects identified within this GMP. The National Park Service will comply with Section 106 (36 CFR 800) as it proceeds with further projects and plans. Additional consultation will occur related to the proposed actions outlined in this GMP.

### U.S. FISH AND WILDLIFE SERVICE

Informal consultation was first initiated with the U.S. Fish and Wildlife Service in November 2003. The U.S. Fish and Wildlife Service responded during the same month, outlining general guidelines and providing a list of federal species of concern. In 2006, the National Park Service again consulted with the U.S. Fish and Wildlife Service because of the time that had lapsed since initial planning efforts began. The U.S. Fish and Wildlife Service responded and directed the National Park Service to consult a regional Web site that identifies New Mexico listed and sensitive species by county. This letter is included in Appendix E. The information from the Web site was used to guide the species analyzed in the Environmental Consequences chapter under “Species of Special Concern.” In September 2009, the regional Web site was consulted to confirm that the list of species at Aztec Ruins and their current status was the same as identified in 2006. The status of several species, such as the bald eagle, had changed; thus, appropriate changes were made in the document (see Table 8).

### NEW MEXICO DEPARTMENT OF GAME AND FISH

The New Mexico Department of Game and Fish was contacted via letter in April 2006. A letter of response was received in May 2006 identifying New Mexico wildlife of concern for San Juan County. The National Park Service again consulted the state Web site in 2009 to reconfirm the state-listed species evaluated in the environmental assessment.

## NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES

The Forestry Division of New Mexico Energy, Minerals, and Natural Resources was also contacted by letter in April 2006 to receive any additional input on fish, wildlife, and plants of state concern. No response was received.

## COMMUNICATION WITH AMERICAN INDIAN TRIBES

All American Indian tribes associated with Aztec Ruins National Monument were contacted in September 2003 through a letter that provided information on the GMP planning effort and that invited tribal representatives to participate in public scoping meetings. Associated tribes include the following:

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

Some tribal representatives attended and provided comments at scoping meetings held in both Albuquerque and Gallup on October 28 and 29, 2003, respectively. Aztec Ruins National Monument staff members participate in annual American Indian Consultation Committee meetings with affiliated tribes in conjunction with other national parks such as Chaco Culture National Historical Park and Mesa Verde National Park. The status of the Aztec Ruins GMP, including some discussion on the alternatives and schedule updates, was presented at the 2006 and 2007 annual meetings. Aztec Ruins will continue to communicate with the tribes as the GMP is implemented.



## PREPARERS AND CONSULTANTS

### PREPARERS OF THE GMP/EA

#### **National Park Service — Aztec Ruins National Monument**

Matilda Arviso, Administrative Officer — Assisted in development of GMP and alternatives for document.

Gary Brown, Chief, Cultural Resource Management/Acting GMP Liaison — Contributed to all sections of the document, particularly archeological resources and cultural landscapes. Has worked with the National Park Service for nine years. Prior to his National Park Service career, he worked with private-sector cultural resource/environmental consulting companies, including several years under contract with the National Park Service.

Dennis L. Carruth, Superintendent — Responsible for management of the Aztec Ruins National Monument, including the coordination of the planning process at the monument level. Contributed to all sections of the document and led all of the public scoping activities and consultation with tribes. Responsible for future implementation of the General Management Plan. Thirty-two years with the National Park Service.

George Herring, Former Chief of Interpretation — Contributed to multiple sections of the document, particularly Visitor Experience and Education Opportunities.

Terry Nichols, Chief, Visitor Services/Resource Management — Contributed to multiple sections of the document. Thirty years with the National Park Service.

Charlene Yazzie, Chief of Maintenance — Contributed to multiple sections of the document. More than 25 years with the National Park Service in various positions in four parks, with the last 15 years spent in facility management.

#### **National Park Service — Intermountain Region**

Jill Cowley, Historical Landscape Architect — Provided guidance on cultural landscape analysis and issues, contributed to cultural landscape sections of the document, reviewed drafts. Twenty-three years experience with the National Park Service, 10 years in park planning and 13 years in managing the IMR Cultural Landscapes program.

Jeff Heywood, Former Team Leader, Landscape Architect/Planner — Responsible for overall management of the project. Contributed to all sections of the document. Experience writing general management plans, development concept plans, and environmental impact statements. Thirty years with the National Park Service; retired in January 2009.

Karen Lusby, Community Planner — Organized document, completed environmental impacts, and contributed to multiple sections of document. Assumed management of GMP in January 2009. Twenty years of experience managing planning and compliance projects for the National Park Service.

Suzy Stutzman, Lead Planner — Assisted in development of GMP document. Has worked for the National Park Service for 31 years.

## CONTRIBUTORS AND CONSULTANTS

### **Contractor**

Nicole Korbe, Former Vegetation and Wildlife Specialist/Environmental Planner

### **National Park Service — Aztec Ruins National Monument**

Tracy Bodnar, Park Ranger

James Brown, Retired Maintenance Work Leader

Brian Culpepper, Former Archeologist

Grady Griffith, Information Technology Specialist

Frank Hayde, Former Park Ranger/Interpretation

Gayle Lopes, Retired Human Resources Assistant

Jerome Lopez, Former Maintenance

Marti Stebbins, Visitor Use Assistant/Fees

### **National Park Service — Intermountain Region**

Wayne Gardner, Former Chief of Planning and Environmental Quality

Greg Kendrick, Heritage Partnerships, Regional Partnership Coordinator

Lori Kinser, Visual Arts, Production Specialist

Richard Kohen, Lead Interpretive Planner

Sarah Lowry, Geographic Information Systems Specialist

Vicki Magnis, Former Geographic Information Systems Specialist

Nancy Shock, Geographic Information Systems Specialist

Kim Sikoryak, Retired Interpretive Planner

Jim Trott, Retired Archeologist

Mark Tyboroski, Former Structural Engineer

Sean Worthington, Geographic Information Systems Specialist

### **National Park Service — Other Contributors**

Kate Cannon, Deputy Superintendent, Grand Canyon

Stephanie Dubois, Former Superintendent, Chaco Culture National Historical Park and Aztec Ruins National Monument

Betty Janes, Retired Assistant Superintendent, Mesa Verde National Park

Pat O'Dell, Petroleum Engineer, Washington Office Geological Resources Division

Ernest Ortega, Former New Mexico State Coordinator

**Western National Parks Association — Aztec Ruins National Monument**

Cyresa Bloom, Former Bookstore Manager

**City of Aztec**

Robert Anderson, Former Aztec City Planner

Erik Aune, Former Aztec City Planner

Sally Burbidge, Aztec Chamber of Commerce, Executive Director

Leanne Hathcock, Aztec Public Library Official

**Others**

Larry Baker, Executive Director, Salmon Ruins

Linda Carlson, Copy Editor, Carlson Editing

Marty Lee, Principal Investigator for Visitor Survey, Northern Arizona University

## BIBLIOGRAPHY

- Bogan, Michael A., Keith Geluso, Shauna Haymond, and Ernest W. Valdez  
 2007 Mammal Inventories for Eight National Parks in the Southern Colorado Plateau Network. Natural Resource Technical Report NPS/IIMR/SCPN/NRTR-2007-054. National Park Service, Fort Collins, Colorado.
- Brown, Gary M., Thomas C. Windes, and Peter J. McKenna  
 2008 Animas Anamnesis: Aztec Ruins or Anasazi Capital? In Chaco's Prodigies: Salmon, Aztec, and the Ascendancy of the Middle San Juan Region after AD 1100, edited by Paul F. Reed, pp. 231–250. University of Utah Press, Salt Lake City.
- Bureau of Business and Economic Research  
 2008 University of New Mexico BBER Population Projections for New Mexico and Counties. Viewed on 9-09-08 at <http://www.unm.edu/~bber/demo/table1.htm>.
- ePodunk  
 2008 Population Growth of Counties, New Mexico. Viewed on 9-08-08 at <http://www.epodunk.com/top10/countyPop/coPop32.html>  
 2008 Aztec Community Profile. Viewed on 9-08-08 at <http://www.epodunk.com/cgi-bin/genInfo.php?locIndex=17784>
- Esber, George S., and Adolph M. Greenberg, with Edith P. Morgan  
 ND. Cultural Affiliation Study: Aztec Ruins National Monument.
- Ford, Dabney, Martha Damas, Neville Agnew, Robert Blanchette, Shin Maekawa, and Michael Romero Taylor  
 2004 Chaco Canyon Reburial Programme. Conservation and Management of Archaeological Sites 6(3&4): 177–202. Special Issue on Site Reburial.
- Johnson Matthew, Jennifer Holmes, Maureen Stuart, and Janet Lynn  
 2007 Avian Inventories for Six National Parks in the Southern Colorado Plateau Network. Natural Resource Technical Report NPS/SCPN/FRTR-2007/047. National Park Service, Fort Collins, Colorado.
- Lister, Robert H., and Florence C. Lister  
 1987 Aztec Ruins on the Animas: Excavated, Preserved, and Interpreted. University of New Mexico Press, Albuquerque. Reprinted by Western National Parks Association, 2007.  
 1990 Aztec Ruins National Monument: Administrative History of an Archeological Preserve. Southwest Cultural Resources Center, Professional Papers No. 24. National Park Service, Santa Fe.
- Morris, Earl H.  
 1928 Notes on Excavations in the Aztec Ruin. Anthropological Papers Vol. 26, Part 5. American Museum of Natural History, New York City.

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

- 1989 *General Management Plan, Development Concept Plan, Aztec Ruins National Monument*. Copy available at Aztec Ruins National Monument.
- 1990 *Administrative History of an Archeological Preserve*, Aztec Ruins National Monument Administrative History, page 190, paragraph 2, referencing original perceived needs that led Senator Jeff Bingaman to sponsor PL 100-559.
- 1993 *Land Protection Plan, Aztec Ruins National Monument*. Copy available at Aztec Ruins National Monument.
- 1993 NPS Guiding Principles of Sustainable Design. Available online.
- 1996 *Resources Management Plan*, Aztec Ruins National Monument. Copy available at Aztec Ruins National Monument.
- 1998 Cultural Landscapes Inventory, Ancient Aztec Community, Aztec Ruins National Monument. Revised 2005.
- 1998 Cultural Landscapes Inventory, Aztec Ruins Historic District, Aztec Ruins National Monument. Revised 2002.
- 1998 Cultural Landscapes Inventory, Historic Vernacular Landscape, Aztec Ruins National Monument. Revised 2005.
- 1998 Director's Order 28, *Cultural Resource Management*. Available online at: <http://data2.itc.nps.gov/npspolicy/DOrders.cfm>.
- 2000 *Draft Restoration Site Plan — Northeast Oldfield/Pasture*, Aztec Ruins National Monument.
- 2001 Aztec Ruins National Monument *Strategic Plan 2001 through 2005*.
- 2001 Director's Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision-Making*. Available online at: <http://data2.itc.nps.gov/npspolicy/DOrders.cfm>.
- 2002 *Environment Assessment, Relocate Ruins Road*, Aztec Ruins National Monument. Copy available at Aztec Ruins National Monument.
- 2002 NP Species Report for NRMAP Project, Aztec Ruins National Monument, Vascular Plants with Nativity of Non-Native, Unknown, or Null.
- 2002 *Remodeling Interior of Visitor Center*, Aztec Ruins National Monument. Copy available at Aztec Ruins National Monument.
- 2003 Economic Impacts of Visitor Spending by Parks, 2003. Viewed on 9/25/08 at <http://web4.canr.msu.edu/mgm2/ParkOutput.cfm>



- 2004 *Visitor Survey, Final Draft Report*, Aztec Ruins National Monument, prepared by Dr. Marty Lee and Gretchen Teich (graduate assistant) for the National Park Service. Copy available at Aztec Ruins National Monument.
- 2005 The Kiva Trading Post Condition Assessment and Preservation Recommendations, Historic Preservation Report, Aztec Ruins National Monument, National Park Service, November 1, 2005.
- 2006 National Park Service *Management Policies 2006*.
- 2006 Public Use Statistics Office, Recreation Visitors. Northern Arizona University, School of Forestry. Viewed at <http://www2.nature.nps.gov/NPstats/dspAnnualVisits.cfm>.
- 2007 Park Museum Collection Storage Plan. Park Museum Management Program, U.S. Department of the Interior, National Park Service. Viewed at <http://www.nps.gov/history/museum/plans/parkmuseumcollectionstorageplan.pdf> on 9-24-09.
- 2007 Geologic Resource Evaluation Scoping Summary, Aztec Ruins National Monument, New Mexico. Prepared by Katie Kellerlynn, March 2007. Geologic Resources Division, National Park Service, U.S. Department of Interior.
- New Mexico Department of Labor
- 2008 New Mexico Department of Workforce Solutions, Employment Statistics. Viewed at <http://www.dws.state.nm.us/LMI/pdf/ta2007.pdf> on 9-25-08.
- Richert, Roland
- 1964 Excavation of a Portion of the East Ruin, Aztec Ruins National Monument, New Mexico. Technical Series No. 4. Southwest Monuments Association, Globe.
- Rink, Glenn, and Anne Cully
- 2008 A Checklist of the Vascular Flora of Aztec Ruins National Monument, San Juan County, New Mexico. *The Journal of the Torrey Botanical Society* 125(4):571–584.
- Rivera, Angela Bass, Brian Culpepper, Jake Barrow, and Preston Fisher
- 2004 Partial Reburial of West Ruin at Aztec Ruins National Monument. Conservation and Management of Archaeological Sites 6(3&4): 285–294. Special Issue on Site Reburial.
- Salas, David, Dave Wegner, and Lisa Floyd-Hanna
- 2008 Vegetation Classification and Mapping Report, Aztec Ruins National Monument. Natural Resource Report NPS/SCPN/NRTR-2008. National Park Service, Fort Collins, Colorado.
- Stein, John R., and Peter J. McKenna
- 1988 The Archeological Reconnaissance of a Late Bonito Phase Occupation near Aztec Ruins National Monument, New Mexico. National Park Service, Division of Anthropology, Southwest Regional Office, Santa Fe.

Stynes, Daniel J.

- 2007 NPS Visitor Spending and Payroll Impacts 2006. Michigan State University, October 2007.

Trott, Jim

In prep. 1984 Archeological Excavations at West Ruin for Preservation Modification. Report in preparation by National Park Service, Intermountain Region Support Office, Santa Fe.

- 1997 Aztec Ruins National Monument Backfilling Plan for West Ruin. National Park Service, Intermountain Support Office, Santa Fe.

U.S. Census Bureau

- 2000 State and County Quickfacts, San Juan County, New Mexico QuickLinks. Viewed at <http://quickfacts.census.gov/qfd/states/35/35045lk.html>

- 2008 State and County Quickfacts, San Juan County, New Mexico QuickLinks. Viewed at <http://quickfacts.census.gov/qfd/states/35/35045lk.html>

U.S. Geological Survey

- 2002a 2001 Avian Inventory Annual Report for Southern Colorado Plateau National Parks: Aztec Ruins National Monument, El Morro National Monument, Petroglyph National Monument, Salinas Pueblo Missions National Monument, and Yucca House National Monument.

- 2002b Results for First-Year Herpetofauna Inventories of Southern Colorado Plateau National Parks. USGS Biological Resources Division, Forest and Rangeland Ecosystem Science Center, Colorado Plateau Field Station, Northern Arizona University, Flagstaff, AZ.

- 2003 2002 Mammalian Inventory Annual Report for Southern Colorado Plateau National Parks: Aztec Ruins National Monument, El Morro National Monument, Petroglyph National Monument, Salinas Pueblo Missions National Monument, and Yucca House National Monument.

- 2004 New Mexico Noxious Weed List.  
<http://usgssrv1.usgs.nau.edu/swepic/asp/swemp/list.asp?status=New%20Mexico>  
Viewed on 12/27/2004

Valdez, Ernie

- 2004 Personal communication on May 14, 2004, between U.S. Geological Survey Albuquerque Wildlife Biologist Ernie Valdez and Theresa Nichols, Aztec Ruins National Monument, regarding the Gas Well EA and bats.

Vivian, Gordon C.

- 1959 The Hubbard Site and Other Tri-Wall Structures in New Mexico and Colorado. Archeological Research Series No. 5. National Park Service, Washington, D.C.

Wall, Denis

- 2000 *NM Business Journal*, July. Putting It Together — San Juan County New Mexico — Statistical Data Included.

## GLOSSARY

### ABBREVIATIONS

CEQ — Council of Environmental Quality

CFR — Code of Federal Regulations

EA — Environmental Assessment

EIS — Environmental Impact Statement

FONSI — Finding of No Significant Impact

GMP — General Management Plan

NEPA — National Environmental Policy Act

NRHP — National Register of Historic Places

NPS — National Park Service

USC — United States Code

### DEFINITION OF TERMS

**Accessibility** — The provision of National Park Service programs, facilities, and services in ways that include individuals with disabilities or makes available to those individuals the same benefits available to persons without disabilities.

**Affected Environment** — Resources expected to experience environmental impacts.

**Affiliated American Indian Tribes** — The lineal descendents or culturally affiliated American Indian groups, for the purposes of fulfilling the intent of the Native American Graves Protection and Repatriation Act.

**Archeological Resources** — Any material remains or physical evidence of past human life or activities which are of archeological interest, including the record of the effects on the human environment. Archeological resources may range in size from a single isolated artifact on the surface of the ground or below the ground's surface, to huge structural ruins, middens, mounds, landscape modifications, or other features. The term generally refers to items that have been abandoned and are falling into decay. There is no time limit regarding when the human life or activity must have occurred for the evidence to be considered an archeological resource. It could have occurred as recently as last year, or any time prior to recorded history. At Aztec Ruins National Monument, there are both historic archeological resources, dating to the defined historic period of 1880 to 1960 (see definition of "historic resources"), and prehistoric archeological resources, dating to the defined prehistoric period of A.D. 1050 – 1300 (see definition of "prehistoric resources"). An archeological resource is capable of revealing scientific or humanistic information through archeological research. At Aztec Ruins, and elsewhere

throughout the United States, American Indian human remains, funerary objects, sacred objects, and objects of cultural patrimony belong to culturally affiliated American Indian groups through the provisions of the Native American Graves Protection and Repatriation Act.

**Archeological Site** — At Aztec Ruins National Monument, the term archeological site refers to an assemblage of 10 or more artifacts with or without a feature, or a feature with or without artifacts. (An artifact is a portable object that was made or used by people, and a feature is a non-portable landscape modification that was made or used by people, such as a campfire hearth or a Chaco great house.) The boundary of an archeological site is marked when the distance from one artifact to the next is greater than approximately eight to nine meters.

**Archeology** — The scientific study, interpretation, and reconstruction of past human cultures from an anthropological perspective based on the investigation of the surviving physical evidence of human activity and the reconstruction of related past environments. Historic archeology uses historic documents as additional sources of information.

**Associated American Indian Tribes** — Tribes with cultural associations to the area of the monument that include a distinct set of beliefs and a relationship to the sites, geography, and landscapes of the monument area. This association precedes the establishment of the monument by numerous generations.

**Conservation** — The protection and preservation of natural and cultural resources from harm. Historically, the terms conserve, protect, and preserve have come collectively to embody the fundamental purpose of the National Park Service – preserving, protecting, and conserving the national park system.

**Council on Environmental Quality (CEQ)** — An agency of the president’s office created under the National Environmental Policy Act (NEPA), to serve as “caretaker” of NEPA.

**Cultural Landscape** — A geographic area, including both cultural and natural resources, the vegetation, and the wildlife therein, that is associated with an historic or prehistoric event, activity, or person, or exhibiting other cultural or aesthetic values. Cultural landscapes have meaning for people, because of their historic or prehistoric significance. Stories about human occupation and use of these landscapes are important values that are associated with them. Elements that contribute to cultural landscapes include vegetation; structures such as buildings, walls and fences, and habitat and ceremonial ruins; roads and circulation systems; and water features. NPS units may contain no cultural landscapes, or numerous cultural landscapes, some of which may overlap each other. The significance of a cultural landscape, especially as relates to the purpose of the NPS unit; the period of significance; the location, size, and configuration of the landscape within the unit; and the contributing elements all combine to determine how that landscape should be managed, and what type of visitor experience is appropriate for the landscape.

**Cultural Resources** — Aspects of a cultural system that are representative of a culture or that contain information about a culture. Cultural resources may be tangible entities such as structures, museum objects, archeological resources, cultural landscapes, or ethnographic resources; or intangible activities such as cultural practices.

**Environmental Assessment** — A NEPA document that is prepared with, with public involvement, (a) to help determine whether the impact of a proposed action or its alternatives could be significant; (b) to aid the NPS in compliance with NEPA by evaluating a proposal that will have no significant impacts, but may have measurable adverse impacts; or (c) as an evaluation

of a proposal that is either not described on the list of categorically excluded actions, or is on the list, but exceptional circumstances apply.

**Environmentally Preferred Alternative** — Alternative that will promote the national environmental policy expressed in the National Environmental Policy Act.

**Final Plan** — Guides future park management.

**Finding of No Significant Impact (FONSI)** — Documents agency’s final decision in a planning process, following release of environmental assessment.

**Foundation for Park Planning and Management** — Describes purpose, significance, primary interpretive themes, mission, mission goals, and special mandates; briefly summarizes the servicewide legal and policy requirements applicable to all units of the national park system; identifies and analyzes those resources and values, including opportunities for public enjoyment, determined to warrant primary consideration in park planning and management.

**General Management Plan** — A plan which clearly defines direction for resource preservation and visitor use in a park, and serves as the basic foundation for decision making. GMPs are developed with broad public involvement.

**Historic Resources** — A district, site, structure, or landscape significant in American history, architecture, engineering, archeology, or culture; an umbrella term for all entries in the National Register of Historic Places. For purposes of discussion, the historic period at Aztec Ruins dates from 1880 to 1960, when relatively recent items that still exist on site, such as farming and ranching facilities, and the visitor center, first appeared. This is to differentiate from the term prehistoric resources, which applies to landscapes, buildings, ruins, and other structures that date back to the period of major occupation of the site by the Pueblo Indians in A.D. 1050 – 1300.

**Impact Analyses** — Rigorous analysis of each alternative to determine potential environmental (natural, cultural, and socioeconomic) impacts as required by the Council on Environmental Quality. Analysis attempts to estimate the degree to which the resource will be affected. This includes consideration of context, intensity, duration, and timing.

**Impairment** — An impact so severe that, in the professional judgment of a responsible National Park Service manager, it would harm the integrity of park resources or values and violate the 1916 National Park Service Organic Act.

**Management Zones** — A management zone is a specific geographical area in the monument to which is assigned a set of desired futures for resource condition, visitor experience, and development facilities, based on the cultural and natural resources contained within that zone. Each zone defines a different set of desired futures.

**Need** — Discussion of existing conditions that need to be changed, problems that need to be remedied, decisions that need to be made, and policies or mandates that need to be implemented. Why the park must take action at this time and in this place.

**“No-Action” Alternative** — As a rule for GMPs, the no-action alternative would continue present management actions. Sets a baseline of existing impact continued into the future against which to compare impacts of action alternatives.

**Preferred Alternative** — Alternative that is believed to best accomplish park goals.



**Prehistoric Resources** — Within the context of this document, the term prehistoric resources refers to landscapes, buildings, ruins, and other structures at Aztec Ruins National Monument that date back to the period of major occupation of the site by the Pueblo Indians in 1050 – 1300 A.D.. Other terms that are used somewhat interchangeably with prehistoric in this document are ancestral Pueblo and ancient. This is to differentiate from the term historic resources, which applies to landscapes, buildings, structures, and other facilities on-site that date back to the period from 1880 to 1960.

**Preservation** — For the purposes of the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, preservation means the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property.

**Protection** — The words conservation, preservation, and protection are used throughout this document. Although they have similar meanings, there are fine differences. In the context of this GMP, protection is defined as follows: The use of legal and physical mechanisms to protect resources and the environment from further degradation. It does not include management actions that might serve to restore or sustain, but emphasizes lessening or preventing adverse impacts to resources from external influences and activities. It may be more narrow in its perspective than conservation or preservation, such as to protect a single species, geographic area, or structure. See also the definition for conservation and preservation.

**Purpose** — Statement of goals and objectives that the National Park Service intends to fulfill by taking action.

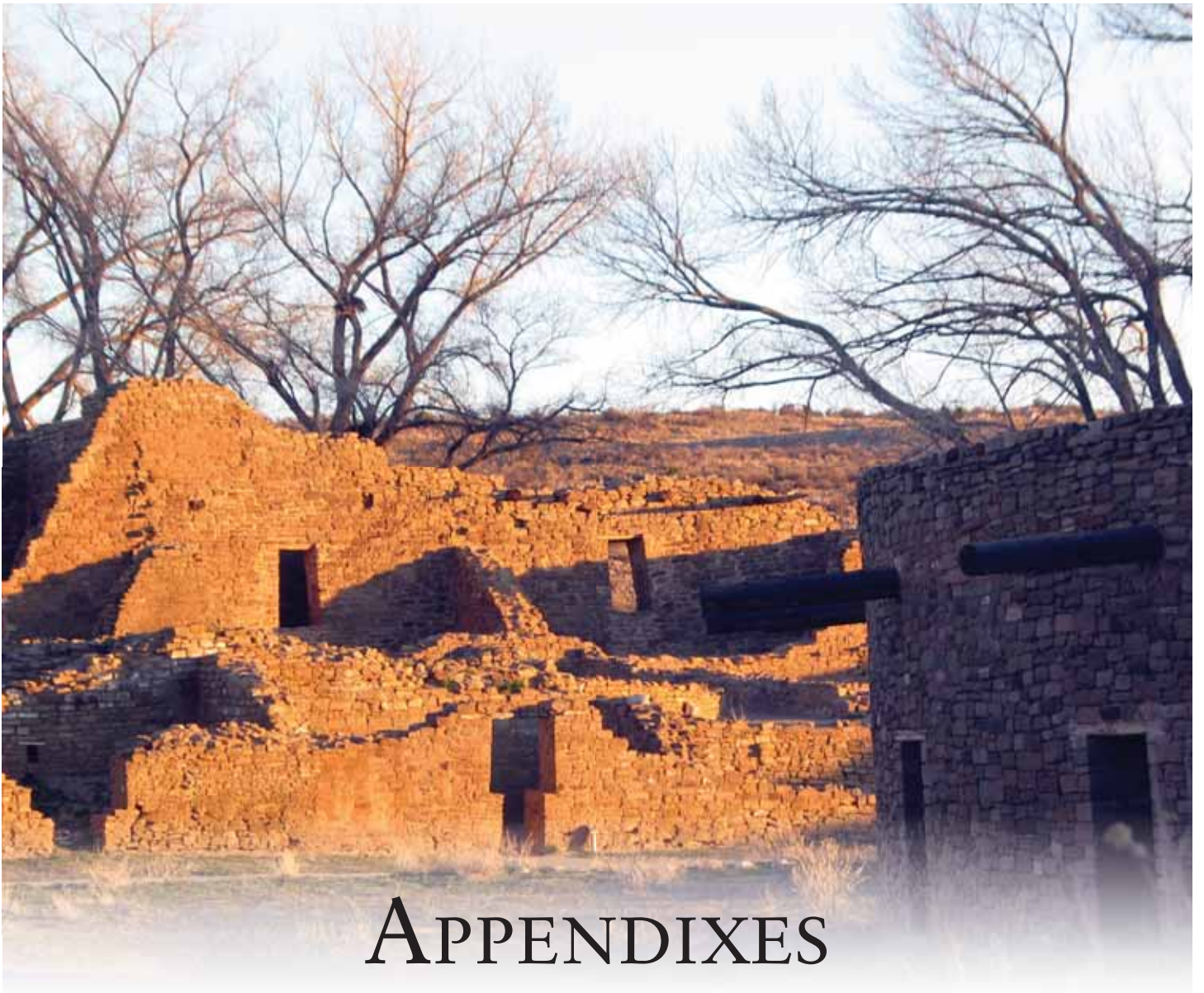
**Reasonable Alternatives** — Defined by the Council on Environmental Quality as those alternatives that are economically and technically feasible and show evidence of common sense.

**Rehabilitation** — The process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values. This requires preservation of contributing elements and may require some changes as needed for continued operations and visitor use. Within this overall approach, some areas of the monument may be preserved (e.g., the archeological resources) and some partially restored (e.g., the Chacoan landscape to more prehistoric agricultural conditions and changes to the plantings in front of the visitor center).

**Resource Area** — A unit of land containing a composition of cultural and natural resources and values that are interrelated and make up a component of the purpose and significance of Aztec Ruins National Monument. It is a tool to provide for better understanding of the resources and to help organize the resources and values of the monument into geographic areas, so that management prescriptions can be developed to protect important resources, provide for visitor use and understanding, and meet management planning and operational goals and objectives.

**Soundscape**— The aggregate of all the natural, non-human-caused sounds that occur in the monument, together with the physical capacity for transmitting natural sounds.

**Stabilization** — Intervening treatment action taken to increase the stability or durability of an object when preventative conservation measures fail to decrease its rate of deterioration to an acceptable level or when it has deteriorated so far that its existence is jeopardized.







## APPENDIX A: LEGISLATION

### 5. Aztec Ruins National Monument

	Page
Establishment: Proclamation (No. 1650) of January 24, 1923.....	113
Enlarging the area: Proclamation (No. 1840) of July 2, 1928.....	114
Enlarging the area: Proclamation (No. 1928) of December 19, 1930.....	116

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

### A PROCLAMATION

[No. 1650—Jan. 24, 1923—42 Stat. 2295]

WHEREAS, there is near the town of Aztec, New Mexico, a ruin of great antiquity and historical interest; and

WHEREAS, the ground on which said ruin stands has been donated to the United States for the establishment of a national monument with a view to the preservation of said ruin for the enlightenment and culture of the Nation:

NOW, THEREFORE, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that there is hereby reserved and set apart as a national monument to be known as the Aztec Ruin National Monument all that piece or parcel of land in the County of San Juan, State of New Mexico, shown upon the diagram hereto annexed and made a part hereof, and more particularly described as follows: Beginning at a point 347 feet north from the south line of section 4 and 20 feet east from the west side of the southeast quarter of the southwest quarter of section 4, township 30 north, range 11 west, N. M. P. M. and running thence north 0°53' east 179.1 feet; thence north 64°46' east 385 feet; thence south 81°23' east 52.3 feet; thence south 42°45' east 436.4 feet; thence south 67°01' west 501.4 feet; thence north 0°53' east 176.5 feet; thence west 240 feet to place of beginning, containing 4.6 acres, all in the southeast quarter of the southwest quarter of section 4, township 30 north, range 11 west.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any of the features or objects included within the boundaries of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management and control of this monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535), as amended June 2, 1920 (41 Stat., 732).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this twenty-fourth day of January, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

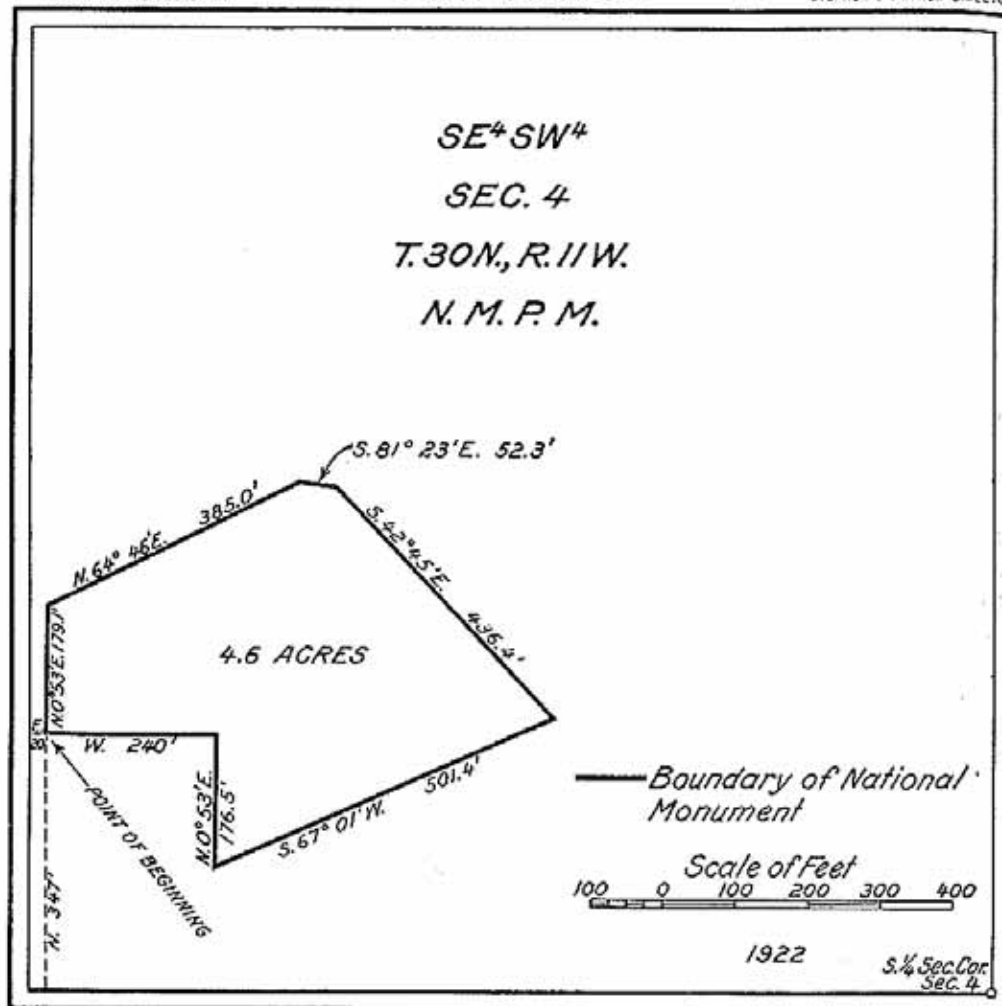
WARREN G. HARDING.

By the President:

CHARLES E. HUGHES,  
*Secretary of State.*

DEPARTMENT OF THE INTERIOR  
ALBERT B. FALL, SECRETARY

NEW MEXICO

NATIONAL PARK SERVICE  
STEPHEN T. MATHER, DIRECTOR

## AZTEC RUIN NATIONAL MONUMENT

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

## A PROCLAMATION

[No. 1840—July 2, 1928—45 Stat. 2954]

WHEREAS, the American Museum of Natural History, a corporation organized and existing by virtue of the laws of the State of New York, did on March 28, 1928, pursuant to the act of Congress entitled, "An Act for the preservation of American Antiquities" approved June 8, 1906, by its certain deed of conveyance, properly executed in writing and acknowledged, remise, release, and quit claim to the United States of America, the following mentioned lands at that time held in private ownership and situated in the County of San Juan in the State of New Mexico, and bounded and particularly described as follows, to wit:

Beginning 694.9 feet north and 376.25 feet east of the southwest corner of the southeast quarter of the southwest quarter of section four (4) township thirty (30) north, range eleven (11) west, New Mexico Principal

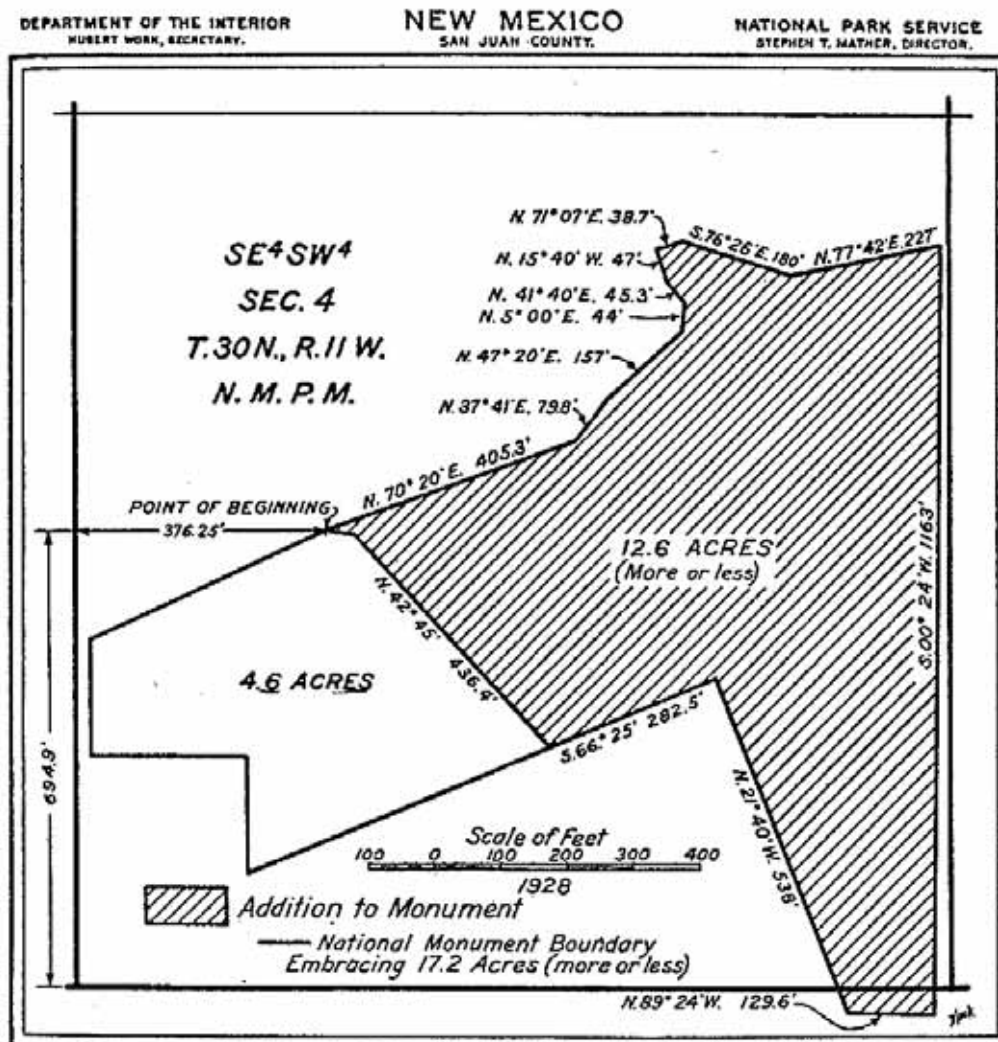


## VIII. NATIONAL MONUMENTS—AZTEC RUINS

115

Meridian, and from said beginning point running, N. 70°20' E. 405.3 feet, thence N. 37°41' E. 79.8 feet, thence N. 47°20' E. 157 feet, thence N. 5°00' E. 44 feet, thence N. 41°40' W. 45.3 feet, thence N. 15°40' W. 47 feet, thence N. 71°07' E. 38.7 feet, then S. 76°26' E. 180 feet, then N. 77°42' E. 227 feet, thence S. 00°24' W. 1163 feet, thence N. 89°24' W. 129.6 feet, thence N. 21°40' W. 538 feet, thence S. 66°25' W. 282.5 feet, thence N. 42°45' W. 436.4 feet, thence N. 81°23' W. 52.3 feet to place of beginning, containing 12.6 acres more or less, all in the southeast quarter of the southwest quarter of section four (4), township thirty (30) north, range eleven (11) west, New Mexico Principal Meridian, and

WHEREAS, said conveyance has been accepted by the Secretary of the Interior in the manner and for the purposes described in said act of Congress, and



## AZTEC RUIN NATIONAL MONUMENT

WHEREAS, there is located on said land a cluster of ruins related in historical and scientific interest with the single ruin embraced within the Aztec Ruin National Monument,

NOW, THEREFORE, I, Calvin Coolidge, President of the United States

of America, by virtue of the power vested in me by Section 2 of said act of Congress, do proclaim that said land hereinbefore described is hereby reserved from appropriation and use of all kinds under the public land laws and set aside as an addition to the Aztec Ruin National Monument, which shall hereafter be known as the "Aztec Ruins National Monument", and that the boundaries of said national monument are now as shown on the diagram hereto annexed and forming a part hereof.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any of the features or objects included within the boundaries of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management and control of this monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535) as amended June 2, 1920 (41 Stat., 732), and March 7, 1928 (Public No. 100—70th Congress).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this second day of July in the year of our Lord one thousand nine hundred and twenty-eight, and of [SEAL] the Independence of the United States of America the one hundred and fifty-second.

CALVIN COOLIDGE.

By the President:

W. R. CASTLE, JR.

*Acting Secretary of State*

---

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

### A PROCLAMATION

[No. 1928—Dec. 19, 1930—46 Stat. 3040]

WHEREAS it appears that the public interest would be promoted by adding to the Aztec Ruins National Monument, in the State of New Mexico, certain adjoining lands for the purpose of including within said monument additional lands on which there are located ruins related in historical and scientific interest with the other ruins within the Aztec Ruins National Monument, and, also, that these lands are necessary for administrative purposes;

NOW, THEREFORE, I, Herbert Hoover, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled "An act for the preservation of American antiquities," approved June 8, 1906 (34 Stat. 225), do proclaim that the following described lands in New Mexico be, and the same are hereby, added to and made a part of the Aztec Ruins National Monument:

Beginning at the southwest corner of the southeast corner (SE.  $\frac{1}{4}$ ) of the southwest quarter (SW.  $\frac{1}{4}$ ) of sec. 4, T. 30 N., R. 11 W., New Mexico principal meridian, and running thence N.  $0^{\circ}53'$  E. 521.4 feet; thence N.  $64^{\circ}46'$  E. 22.1 feet to the northwest corner of the present Aztec Ruins National Monument; thence S.  $0^{\circ}53'$  W. 179.1 feet along the west line of said national monument; thence E. 240 feet along the south line of said



## VIII. NATIONAL MONUMENTS—AZTEC RUINS

117

national monument; thence S.  $0^{\circ}53'$  W. 176.5 feet along the west line of said national monument; thence S.  $67^{\circ}01'$  W. 46 feet; thence S.  $7^{\circ}13'$  W. 158.4 feet; thence N.  $88^{\circ}40'$  W. 200.6 feet to place of beginning, containing approximately 1.8 acres and being a fraction of the southeast quarter (SE.  $\frac{1}{4}$ ) of the southwest quarter (SW.  $\frac{1}{4}$ ) of said above-mentioned section, township, and range. Also, all that certain parcel of land, situated within the county of San Juan, N. Mex., bounded as follows: Beginning at a point 200.6 feet S.  $88^{\circ}40'$  E. from the southwest corner of the southeast quarter (SE.  $\frac{1}{4}$ ) of the southwest quarter (SW.  $\frac{1}{4}$ ) of sec. 4, T. 30 N., R. 11 W., New Mexico principal meridian, which is the place of beginning of this tract; thence N.  $7^{\circ}13'$  E. 158.4 feet; thence N.  $67^{\circ}01'$  E. 547.4 feet; thence N.  $66^{\circ}25'$  E. 282.5 feet; thence S.  $21^{\circ}40'$  E. 538.0 feet; thence N.  $89^{\circ}03'$  W. 981.6 feet, to the place of beginning, containing 6.8788 acres.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument as provided in the act of Congress entitled "An act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat. 535), and acts additional thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 19th day of December, in the year of our Lord nineteen hundred and thirty, and of the Independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

By the President:

HENRY L. STIMSON,  
*Secretary of State.*

## ENLARGING THE AZTEC RUINS NATIONAL MONUMENT—NEW MEXICO

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

May 27, 1948  
[No. 2787]

## A PROCLAMATION

WHEREAS there adjoins the Aztec Ruins National Monument, in the State of New Mexico, a certain 1.255-acre tract of land upon which are located ruin mounds of unusual prehistoric and scientific value of the same period and culture as those now contained in that monument; and

WHEREAS the Southwestern Monuments Association, an organization created for the purpose of fostering the development and preservation of the group of areas known as the Southwestern National Monuments, which include the Aztec Ruins National Monument, has donated the said tract of land to the United States for addition to such monument; and

WHEREAS it appears that it would be in the public interest to reserve such tract of land as an addition to the said Aztec Ruins National Monument:

NOW, THEREFORE, I, HARRY S. TRUMAN, President of the United States of America, under and by virtue of the authority vested in me by section 2 of the act of June 8, 1906, c. 3060, 34 Stat. 225 (16 U. S. C. 431), do proclaim that, subject to valid existing rights, the following-described tract of land in New Mexico is hereby added to and reserved as a part of the Aztec Ruins National Monument:

Addition of land to  
Aztec Ruins National  
Monument.

Beginning at a point N. 00°53' E., 521.4 feet from the southwest corner of the southeast quarter (SE¼) of the southwest quarter (SW¼) of section 4, T. 30 N., R. 11 W., New Mexico Principal Meridian, the northwest corner of the present Aztec Ruins National Monument; thence N. 00°53' E., 278.2 feet, thence east 60.0 feet, thence S. 75°08' E., 85.13 feet, thence S. 68°52' E., 236.76 feet, thence S. 70°20' W., 20.33 feet, thence S. 64°46' W., 385.00 feet, along the present northerly boundary of Aztec Ruins National Monument to the point of beginning, containing 1.255 acres, more or less.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

Warning to unau-  
thorized persons.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument as provided in the act of Congress entitled "An Act To establish a National Park Service, and for other purposes", approved August 25, 1916, 39 Stat. 535 (16 U. S. C. 1-3), and acts supplementary thereto or amendatory thereof.

Supervision, etc.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

DONE at the city of Washington this 27<sup>th</sup> day of May in the year of our Lord nineteen hundred and forty-eight, and of the  
[SEAL] Independence of the United States of America the one hundred and seventy-second.

HARRY S TRUMAN

By the President:

ROBERT A LOVETT

*Acting Secretary of State*



102 STAT. 2800

PUBLIC LAW 100-559—OCT. 28, 1988

(d) Lands not acquired by New Mexico State University pursuant to this section and which are encompassed by P.L.O. 2051 may be disposed of, when available for disposition, by sale to or exchange with the State of New Mexico, New Mexico State University, or other public entities in accordance with the Recreation and Public Purposes Act (43 U.S.C. 869 et seq.): *Provided, however*, That New Mexico State University is given a right of first refusal on any proposed disposition.

Education.  
Science and  
technology.  
Research and  
development.  
Energy.

(e) None of the lands transferred to New Mexico State University pursuant to this section shall be sold by New Mexico State University. All such lands shall be used for the purposes of promoting directly or indirectly educational, scientific, and research activities, including those activities currently authorized under P.L.O. 2051, or promoting the utilization of the natural geothermal resources located within the boundaries of the lands transferred. In the event that the lands transferred to New Mexico State University pursuant to this section are used for any purpose other than those for which conveyance is authorized by this subsection, title to that portion of the lands upon which there is an unauthorized use shall immediately revert to the United States without the necessity for further action to accomplish the reversion of title to the United States.

(f) Notwithstanding any other provision of law or court order, the Secretary of the Interior, if the Secretary determines it is necessary and appropriate for the purpose of consummating a conveyance of lands or interests therein under this Act, is hereby authorized and directed to revoke P.L.O. 2051 or any portion thereof necessary to consummate the transaction authorized by this title.

16 USC 431 note.

## TITLE VI—AZTEC RUINS NATIONAL MONUMENT

### SEC. 601. REVISION OF BOUNDARY.

Public  
information.

The boundary of Aztec Ruins National Monument is hereby revised to include the area generally depicted on the map entitled "Aztec Ruins, Addition, Aztec Ruins National Monument", numbered 319/80,015, and dated October 16, 1987. Such map shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior

### SEC. 602. LAND ACQUISITION.

Gifts and  
property.

The Secretary of the Interior is authorized to acquire lands, interests in lands, and improvements thereon within the boundary of the national monument as amended by section 601 by donation, exchange, or purchase with donated or appropriated funds.

### SEC. 603. ADMINISTRATION.

National Park  
System.

The Secretary of the Interior shall administer the Aztec Ruins National Monument in accordance with the provisions of law generally applicable to units of the National Park System including the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented, and the Act of August 21, 1935 (49 Stat. 666).

### SEC. 604. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated such sums as may be necessary to carry out the purposes of this title.



## APPENDIX B: RESOURCE AREAS

### Aztec Ruins National Monument New Mexico

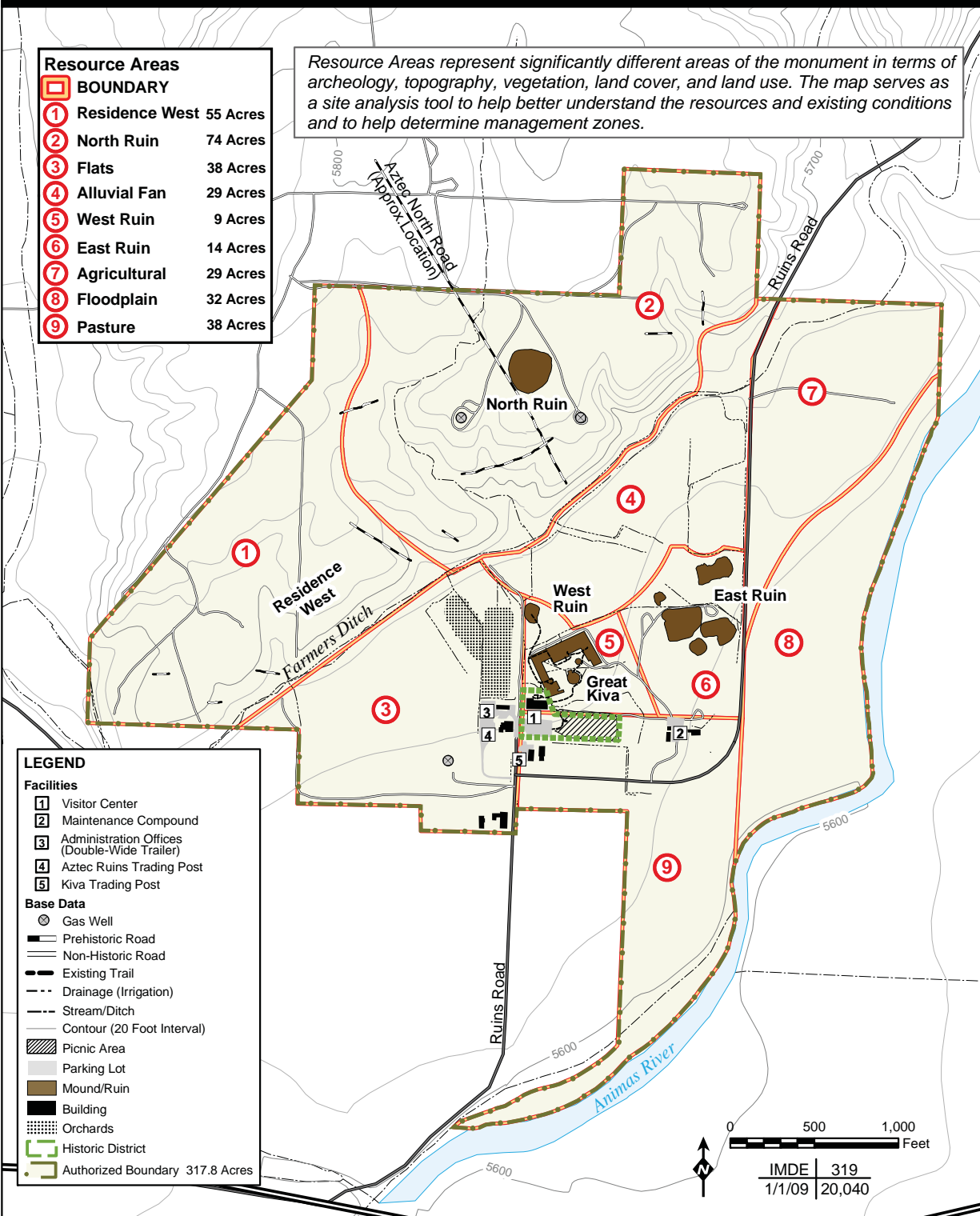
National Park Service  
U.S. Department of the Interior



#### Resource Areas

Resource Areas	
	<b>BOUNDARY</b>
①	Residence West 55 Acres
②	North Ruin 74 Acres
③	Flats 38 Acres
④	Alluvial Fan 29 Acres
⑤	West Ruin 9 Acres
⑥	East Ruin 14 Acres
⑦	Agricultural 29 Acres
⑧	Floodplain 32 Acres
⑨	Pasture 38 Acres

Resource Areas represent significantly different areas of the monument in terms of archeology, topography, vegetation, land cover, and land use. The map serves as a site analysis tool to help better understand the resources and existing conditions and to help determine management zones.



## Resource Areas and Attributes

RESOURCE AREA	ATTRIBUTES		
	Location and General Description	Cultural Resources	Opportunities for Visitor Experience
① Residence West (55 Acres)	Undulating land on upper river terrace (mesa), elevation 5,800 ft.; surrounded by steep cobble slopes, desert scrub, and grass; capped natural gas well. Bordered by monument boundary to north and west; Farmers Ditch to south and drainage to east.	Many archeological sites, artifacts, and prehistoric landscape features. Opportunities for research.	Views of Main Ruins Group, river valley, and city; unexcavated archeological resources; and prehistoric designed landscape. Opportunities for specially requested guided tours for specific programs or groups.
② North Ruin (74 Acres)	Undulating land on upper river terrace (mesa), elevation 5,800 ft.; surrounded by steep cobble slopes, desert scrub, and grass; active natural gas wells with associated roads. Bordered by monument boundary to north and east, drainage to west, Farmers Ditch to south.	Many archeological sites, artifacts, and prehistoric landscape features. Opportunities for research.	Views of Main Ruins Group, river valley, and city; unexcavated archeological resources; and prehistoric designed landscape. May be accessible to disabled visitors, unobtrusive learning support facilities, guided and self-guided tours.
③ Flats (38 Acres)	Open field, orchard, exotic and native vegetation, and active natural gas resources. Bordered by Farmers Ditch on north, alluvial fan and West Ruin to east, and monument boundary to west and south. Also bordered by housing development to south.	Prehistoric landscape features, including unrecorded archeological sites. Historic landscape features, including orchards, Farmers Ditch, and homestead.	Potential demonstration area; interpretation of historic use. Guided or self-guided tours.
④ Alluvial Fan (29 Acres)	Open field, exotic and native vegetation, prairie dog colony. Area bordered by flats to west, Farmers Ditch on north, East and West ruins to south, and County Road 2900 (Ruins Road) to east.	Prehistoric landscape features, including recorded archeological sites. Historic landscape features, including Farmers Ditch and agricultural structures. Connection to West and East Ruins.	Opportunity for guided or self-guided tours (loop trail), historic structures and prehistoric resources, alluvial fan, and riparian zone.
⑤ West Ruin (9 Acres)	West Ruin Complex—excavated ruins. Interpretive trail—main interpretive site of monument. Bordered by orchards and flats to west, projected alignment of Chacoan road and East Ruin to east, maintenance trail and Historic District to south, and alluvial fan to north.	Excavated and partially preserved ruins. Reconstructed kiva.	Main interpretive area, most accessible, handicap accommodations (full or near-full accessibility to facilities), reconstructed kiva, rooms with intact roofs. Current school tour area. Interpretation of preservation activities.
⑥ East Ruin (14 Acres)	East Ruin Complex—unexcavated ruins. Bordered by maintenance complex to south, projected alignment of Chacoan road and West Ruin to west, County Road 2900 (Ruins Road) to east, and alluvial fan to north.	Unexcavated large ruin complex.	Opportunities for interpretation of unexcavated ruins; full or near-full accessibility facilities.

RESOURCE AREA	ATTRIBUTES		
	Location and General Description	Cultural Resources	Opportunities for Visitor Experience
<p>⑦ Agricultural (29 Acres)</p>	<p>Far northeast corner of monument. Bordered by County Road 2900 (Ruins Road) to west, monument boundary to north and east, and floodplain to south. Terraced, grazed, and farmed, residential development—privately owned. Area farmed historically, and historic Farmers Ditch runs through part of zone.</p>	<p>Poorly known, owing to lack of field survey and inventory. Moderate potential for ancestral Pueblo and historic cultural resources.</p>	<p>Interpretation of cultural landscape. Opportunity for special events/group activities.</p>
<p>⑧ Floodplain (32 Acres)</p>	<p>Animas River floodplain area south of terraced agricultural area. Bordered to west by Ruins Road and pasture and by river and monument boundary to east and south.</p>	<p>Historic landscape.</p>	<p>Water— access to Animas River. Potential trail to, or along, river corridor.</p>
<p>⑨ Pasture (38 Acres)</p>	<p>Either current or former pasture. Contains development. Bordered by monument boundary and river to south, monument boundary and flats to west, maintenance trail and West and East Ruins to north, and floodplain to east. Southern portions are privately owned.</p>	<p>Archeological and historic sites, artifacts, and prehistoric and historic landscape features.</p>	<p>Potential demonstration area. Possible foot bridge/trail. Historic orchards/interpretation for historic use. Continuum of use. Opportunities for interpretation of connection of ruins to river.</p>

## APPENDIX C: CARRYING CAPACITY

### CARRYING CAPACITY STEPS

The carrying capacity process for national parks typically involves the following steps:

1. Identify desired conditions (goals) for resources and visitors.
2. Identify indicators (things to monitor to determine whether desired conditions are being met).
3. Identify standards (limits of acceptable change) for the indicators.
4. Monitor indicators.
5. Take management action as necessary to ensure that standards are met.
6. Regularly evaluate and make adjustments based on new information and lessons learned.

Step 1: identify desired conditions, involves assigning management zones that have different desired resource and visitor conditions to different park areas.

Step 2: identify indicators, often begins with a discussion of park and zone- specific resource and visitor experience concerns (signs that desired conditions are perhaps not being met). Discussing specific concerns helps managers identify potential resource and visitor experience indicators to monitor. Depending on the situation, managers may also consult scientific literature, conduct research, consult other park managers, consult public opinion, and apply management judgment to assist with identifying indicators.

Step 3: identify standards, involves using scientific information, combined with best judgment, to establish the minimum acceptable condition for an indicator. (A standard does not define an intolerable condition. It is not a condition that managers should strive to achieve, unless intolerable conditions already exist.)

Step 4: monitor indicators, means checking indicators to see if conditions are deteriorating or if standards are being exceeded. Ideally, monitoring involves systematic and periodic measurement of indicators according to a predefined plan. With limited NPS staff and budgets, park managers must focus on areas where there are definite concerns and/or clear evidence of problems. This means monitoring should generally take place where:

- conditions are at or violate standards
- conditions are changing rapidly
- specific and important values are threatened by visitation
- effects of management actions are unknown

Step 5: take management action, means taking corrective steps to address deteriorating or unacceptable conditions. Management action includes things like expanding education or information, requiring visitor guides or permits, delineating trails, extending seasons or hours, expanding facilities, establishing one- way trails, increasing patrols, implementing temporary closures, or redirecting use. Using a combination of strategies provides managers with greater flexibility and allows them to address multiple dimensions and causes of undesired impacts. Reducing use may appear to be the obvious solution to visitor use impacts, but less restrictive strategies may work as well and have fewer undesired consequences.

Step 6: sometimes referred to as adaptive management, means remaining flexible and “learning as you go.” Park managers rarely have all the information they desire to make decisions. Nonetheless, they are responsible for ensuring that park resources remain unimpaired for the enjoyment of future generations, which may mean taking a cautious or conservative approach while gathering additional information. Adaptive management also includes using best judgment, trying different things to see what works, and adapting as new information becomes available.



## APPENDIX D: ALTERNATIVE CAST AND STAFFING COMPARISON

### ESTIMATED COSTS AND STAFFING FOR ALTERNATIVES 1, 2, AND 3

COST ITEM <sup>1</sup>	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3: PROPOSED ACTION
ANNUAL OPERATING COSTS <sup>2</sup> (ONPS)	\$1,130,000 <sup>3</sup>	\$1,250,000 <sup>4</sup>	\$1,320,000 <sup>5</sup>
STAFFING (FTE) <sup>6</sup>	16	18	19
TOTAL ONE-TIME COSTS	\$430,000	\$2,420,000	\$3,460,000
FACILITY COSTS <sup>7</sup>	\$430,000	\$2,400,000	\$3,440,000
Aztec Ruins Trading Post <sup>8</sup>	(Removal) 60,000	1,260,000	2,300,000
Kiva Trading Post	370,000	370,000	370,000
Administrative Trailer	0	(Removal) 10,000	(Removal) 10,000
Interpretive Trail	0	760,000	760,000
NON-FACILITY COSTS <sup>9</sup> (Remove Orchards, Alts. 2 & 3)	\$ 0	\$ 20,000	\$ 20,000

<sup>1</sup> Costs are in 2009 dollars, rounded to the nearest ten thousand dollars.

<sup>2</sup> Annual operating costs are the total costs per year for maintenance and operations associated with each alternative, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative.

<sup>3</sup> Includes \$16,000 annual cost of maintaining orchards.

<sup>4</sup> Excludes \$16,000 cost of maintaining orchards; and includes cost of two additional FTE over Alternative 1:

- Office Automation Clerk/Receptionist
- Archeologist

<sup>5</sup> Excludes \$16,000 cost of maintaining orchards; and includes cost of three additional FTE over Alternative 1:

- Office Automation Clerk/Receptionist
- Archeologist
- Educational/Interpretation Outreach Specialist

<sup>6</sup> The total number of FTEs is the number of person-years of staff required to maintain the assets of the monument at a good level, provide acceptable visitor services, protect resources, and generally support the monument's operations. The FTE number indicates ONPS-funded NPS staff only, not volunteer positions or positions funded by partners or projects. FTE salaries and benefits are included in the annual operating costs.

<sup>7</sup> One-time facility costs include those for the design, construction, rehabilitation, or adaptive reuse of visitor centers, roads, parking areas, trails, administrative facilities, comfort stations, educational facilities, entrance stations, fire stations, maintenance facilities, museum collection facilities, and other visitor facilities. Costs consist of Net Construction Cost + Gross-Up (Construction Supervision [8%] & Contingencies [10%]) + Planning, Design, & Compliance (22%).

<sup>8</sup> Costs for Alternatives 2 and 3 are based on approved Administration Facility Planning Model, with 10 NPS staff (Alternatives 2 & 3), and 50 people in Cultural Activities Center (Alternative 3); including landscaping at 15% of building cost.

<sup>9</sup> One-time non-facility costs include actions for the preservation, removal, or other management of cultural or natural resources not related to facilities; the development of visitor use tools not related to facilities; and other park management activities that would require substantial funding above park annual operating costs.

## APPENDIX E: CONSULTATION LETTERS



### United States Department of the Interior

NATIONAL PARK SERVICE  
AZTEC RUINS NATIONAL MONUMENT  
#84 County Road 2900  
Aztec, New Mexico 87410-9715  
(505 334-6174)

IN REPLY REFER TO:  
D18

September 29, 2003

Ms. Katherine Slick  
State Historic Preservation Officer  
Office of Cultural Affairs  
228 East Palace Ave.  
Santa Fe, NM 87503

Dear Ms. Slick,

Aztec Ruins National Monument is in the early stages of a three-year planning effort to develop a new General Management Plan (GMP). We are distributing the enclosed scoping brochure as an initiation and explanation of the public involvement process related to the GMP development.

Public meetings will be held to provide venues for people to voice their concerns, make comments, and ask questions about the planning process. The following meetings are scheduled to be held during the month of October, 2003:

- Thursday, October 16 – Aztec, City Council Chambers, 6:30 – 8:30 PM
- Saturday, October 18 – Aztec Ruins National Monument visitor center, 1:00 – 5:00 PM
- Monday, October 27 – Santa Fe, Holiday Inn, 4048 Cerrillos Road, 1:00-4:00 PM
- Tuesday, October 28 – Albuquerque, Indian Pueblo Cultural Center, 2401 12<sup>th</sup> Street Northwest, 1:00-4:00 PM
- Wednesday, October 29 – Gallup, Ramada Inn Limited, 1440 W. Maloney Avenue, 1:00-4:00 PM.

Over the next 24 to 36 months you will hear from us periodically, both formally and informally, regarding the progress of the GMP planning process. Likewise, we invite you to contact us with any comments or questions regarding the development of the new GMP.

Sincerely,

Dennis L. Carruth  
Superintendent

Enclosure

cc: Elizabeth Oster



## 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

APR 12 2006



Thank you for your recent request for information on threatened or endangered species or important wildlife habitats that may occur in your project area. The New Mexico Ecological Services Field Office has posted lists of the endangered, threatened, proposed, candidate and species of concern occurring in all New Mexico Counties on the Internet. Please refer to the following web page for species information in the county where your project occurs: [http://ifw2es.fws.gov/NewMexico/SBC\\_intro.cfm](http://ifw2es.fws.gov/NewMexico/SBC_intro.cfm). If you do not have access to the Internet or have difficulty obtaining a list, please contact our office and we will mail or fax you a list as soon as possible.

After opening the web page, find New Mexico Listed and Sensitive Species Lists on the main page and click on the county of interest. Your project area may not necessarily include all or any of these species. This information should assist you in determining which species may or may not occur within your project area.

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" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with us further. Similarly, it is their responsibility to determine if a proposed action has no effect to endangered, threatened, or proposed species, or designated critical habitat. If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts. 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 or cumulative effects.

Candidates and species of concern have no legal protection under the Act and are included on the web site for planning purposes only. We 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.

Also on the web site, we have included additional wildlife-related information that should be considered if your project is a specific type. These include communication towers, power line safety for raptors, road and highway improvements and/or construction, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.



GOVERNOR  
Bill Richardson



STATE OF NEW MEXICO  
DEPARTMENT OF GAME & FISH

One Wildlife Way  
Post Office Box 25112  
Santa Fe, NM 87504  
Phone: (505) 476-8101  
Fax: (505) 476-8128

STATE GAME COMMISSION

Leo V. Sims, II, Chairman  
Hobbs, NM

Dr. Tom Arvas, Vice-Chairman  
Albuquerque, NM

David Henderson, Commissioner  
Santa Fe, NM

Alfredo Montoya, Commissioner  
Alcalde, NM

Peter Pino, Commissioner  
Zia Pueblo, NM

M. H. "Dutch" Salmon, Commissioner  
Silver City, NM

DIRECTOR AND SECRETARY  
TO THE COMMISSION  
Bruce C. Thompson

Visit our website at [www.wildlife.state.nm.us](http://www.wildlife.state.nm.us)  
For basic information or to order free publications: 1-800-862-9310.

May 22, 2006

Mr. Dennis L. Carruth, Superintendent  
Aztec Ruins National Monument  
#84 County Road 2900  
Aztec, NM 87410-9715

Re: Aztec Ruins National Monument Request for Species of Concern List  
NMGF Doc. No.10780

Dear Superintendent Carruth:

The Department of Game and Fish (Department) has reviewed your 3 April 2006 request for a species of concern list for use in development of the Aztec Ruins National Monument General Management Plan Environmental Assessment (EA). According to your letter, a draft EA is anticipated in fall 2006.

Attached please find the recently updated New Mexico Wildlife of Concern list for San Juan County. We regret that we apparently failed to forward this list to you when requested in the fall of 2003. Our Biota Information System of New Mexico (BISON-M) database, from which species of concern lists by county are generated, has been undergoing revision to make the database web-accessible and searchable. We hope to have this system on-line for public use in June 2006.

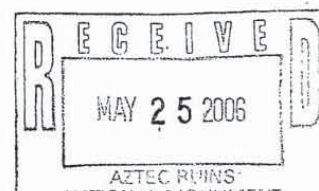
We look forward to reviewing the Aztec Ruins National Monument Draft EA when complete. Should you have any additional requests for information in this regard, please contact Mark Watson, Habitat Specialist, of my staff at (505) 476-8115, or [mark.watson@state.nm.us](mailto:mark.watson@state.nm.us).

Sincerely,

Jan Ward, Assistant Chief  
Conservation Services Division

JW/MLW

CC: Russ Holder (Acting Ecological Services Field Supervisor, USFWS)  
Brian Gleadle (Northwest Area Operations Chief, NMGF)  
Mark Watson (Conservation Services Habitat Specialist, NMGF)



## NEW MEXICO WILDLIFE OF CONCERN SAN JUAN COUNTY

For complete up-dated information on federal-listed species, including plants, see the US Fish & Wildlife Service NM Ecological Services Field Office website at [http://www.fws.gov/ifw2es/New Mexico/SBC\\_intro.cfm](http://www.fws.gov/ifw2es/New%20Mexico/SBC_intro.cfm). For information on state-listed plants, contact the NM Energy, Minerals and Natural Resources Department, Division of Forestry, or go to <http://nmrareplants.unm.edu/>. If your project is on Bureau of Land Management, contact the local BLM Field Office for information on species of particular concern. If your project is on a National Forest, contact the Forest Supervisor's office for species information.

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>US FWS</u>	<u>critical habitat</u>
Roundtail Chub	<i>Gila robusta</i>	E	SOC	
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E	E	Y
Razorback Sucker	<i>Xyrauchen texanus</i>	s	E	Y
California Kingsnake	<i>Lampropeltis getula californiae</i>	s		
Brown Pelican	<i>Pelecanus occidentalis</i>	E		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T	
Northern Goshawk	<i>Accipiter gentilis</i>	s	SOC	
Peregrine Falcon	<i>Falco peregrinus</i>	T	SOC	
Mountain Plover	<i>Charadrius montanus</i>	s	SOC	
Least Tern	<i>Sterna antillarum</i>	E	E	
Black Tern	<i>Chlidonias niger surinamensis</i>		SOC	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	s	C	
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	s	T	Y
Burrowing Owl	<i>Athene cunicularia</i>		SOC	
Black Swift	<i>Cypseloides niger</i>	s		
Broad-billed Hummingbird	<i>Cynanthus latirostris</i>	T		
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E	E	Y
Loggerhead Shrike	<i>Lanius ludovicianus</i>	s		
Gray Vireo	<i>Vireo vicinior</i>	T		
Baird's Sparrow	<i>Ammodramus bairdii</i>	T	SOC	
Western Small-footed Myotis Bat	<i>Myotis ciliolabrum melanorhinus</i>	s		
Yuma Myotis Bat	<i>Myotis yumanensis yumanensis</i>	s		
Little Brown Myotis Bat	<i>Myotis lucifugus carissima</i>	s		
Long-legged Myotis Bat	<i>Myotis volans interior</i>	s		
Fringed Myotis Bat	<i>Myotis thysanodes thysanodes</i>	s		
Long-eared Myotis Bat	<i>Myotis evotis evotis</i>	s		
Spotted Bat	<i>Euderma maculatum</i>	T		
Pale Townsend's Big-eared Bat	<i>Corynorhinus townsendii pallascens</i>	s	SOC	
Big Free-tailed Bat	<i>Nyctinomops macrotis</i>	s		
Yellow-bellied Marmot	<i>Marmota flaviventris</i>	s		
Gunnison's Prairie Dog	<i>Cynomys gunnisoni</i>	s		
Red Fox	<i>Vulpes vulpes</i>	s		
Western Spotted Skunk	<i>Spilogale gracilis</i>	s		





